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Causal Attributions of Elite Volleyball Players In a Competitive Field Setting

BY

Larry Stephenson ©

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment of the requirements for the degree of Master of Arts.

DEPARTMENT OF PHYSICAL EDUCATION

Edmonton, Alberta
FALL, 1994

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and research for acceptance, a thesis entitled **Causal Attributions of Elite Volleyball Players in a Competitive Field Setting** submitted by Larry Stephenson in partial fulfillment of the requirements for the degree of Master of Arts.

JM Hogg

Supervisor: Dr. J. Hogg

M Bouffard

Dr. M. Bouffard

Dr. G. Fishburne

Dr. G. Fishburne

Date: Sept 12 1994

DEDICATION

This study is dedicated to my wife Bonnie, daughter Carmen, and son Colin who, forbearing self-interests, allowed me the opportunity to pursue a personal dream.

ABSTRACT

The present study was conducted (a) to study attributions of developmental athletes in a team environment, (b) to replicate the results that led Mark, Mutrie, Brooks, & Harris (1984) to their reformulation of the self-serving bias, (c) to compare attributions (within a team environment) made from a team perspective to those made from an individual performance perspective, (d) to employ the revised Causal Dimension Scale (McAuley, Duncan, & Russell, 1992) in a field setting, and (e) to explore possible gender differences within a comparatively equal competitive situation. Two separate studies were conducted to examine attributions made by males and females as winners and losers involved in elite levels of developmental volleyball competition. The CDSII was administered to 76 females and 71 males in study 1 and 65 females and 78 males in study 2. Attributions obtained from outcome, team and individual perspectives were analyzed according to the four dimensions identified through the instrument. The results obtained indicate a high degree of similarity between winners and losers of both genders relative to the locus and personal control dimensions. Winners and losers were found to differ significantly as to their attributional patterns pertaining to the stability dimension. The results were discussed relative to the support provided for the reformulation of the self-serving bias. The possible implications of results obtained on the new personal and external control dimensions were also explored. Performance perspective was found to have had an effect upon the formulation of causal ascriptions. No significant gender differences were indicated.

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Thanks are also extended to my wife Bonnie and daughter Carmen who willingly gave of their time to ably assist in the administration of the questionnaires during the first study.

Sincere thanks is also extended to the athletes and coaches who took time from their busy competition schedules to take part in the study. Only through their cooperation and participation was this research possible.

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LIST OF DEFINITIONS

ego involvement:	Equated to the importance of the match as measured by responses to a 9 point Likert-like scale.
outcome perspective:	Classification of causal ascriptions based upon objective result, win or loss.
individual perspective:	Classification of causal ascriptions based upon personal contributions to achievement outcome.
team perspective:	Classification of causal ascriptions based upon each individual's evaluation of the team's contributions to achievement outcome
objective grouping:	Based upon objective win/loss results.
subjective grouping:	Based upon each participant's evaluation of achievement outcome relative to performance goals. Measured on a 9 pt. Likert-like scale.
self-fulfilling bias:	The tendency for individuals in achievement situations to formulate causal ascriptions favoring self-esteem protection or support.

INTRODUCTION

Purpose

To facilitate the development of a practical understanding of the link between attributions and behavior, it continues to be important to study attributions in the competitive field setting. Practical knowledge concerning the formulation of causal attributions by athletes involved in real situations can contribute to an understanding of how athletes come to derive meaning from their sport experiences. In an applied sense this information can then be utilized by coaches to guide their athletes in formulating causal ascriptions that have the potential to contribute to performance enhancement. This understanding must be available to coaches of individual as well as team sports and must be applicable to both male and female athletes. Although factors such as team dynamics, collective efficacy, and group cohesion add to the complexity of attributional research involving team sports, it is important that studies attempt to apply attributional theories equally to team sports as well as to individual sports.

Mark, Mutrie, Brooks, and Harris (1984) suggested a reformulation of the self-serving bias as it may exist within a sporting context involving racquetball and squash athletes. The self-serving bias had been previously described as the tendency for athletes, motivated by a desire to protect self-esteem, to ascribe the cause of losing outcomes to external sources, winning outcomes to internal causes. Mark, et al., have suggested that, due to norms existing within sport, athletes in losing situations are discouraged from assigning blame to outside sources. Their study indicates that, following losses, athletes are more inclined to alter their causal ascriptions along the dimensions of stability and controllability. This reformulation has yet to be examined by studying attributions made by athletes involved in team sports. Although a recent study (Grove, McInman, & Hanrahan, 1991) did provide support for the reformulation suggested by Mark et al., there is some confusion as to whether their results should be interpreted from an individual perspective or from a team perspective. To provide for consistency in orientation to the classification of causal ascriptions, Grove et al. combined the team and personal orientations into one. In this regard, it is unclear as to which interpretation may have been dominant during any given response. This study represents an initial attempt to clarify the picture by allowing each athlete to respond from each performance perspective.

Previous research (Bird & Brame, 1978; Bird, Foster, & Maruyama, 1980; Taylor & Doria, 1981) has examined differences between attributions made from an individual perspective and attributions made from a team perspective. Evidence has emerged from these studies that indicates that these differences in orientations can lead to differences in attributional responses. Since the early 1980's, no attempt has been made to examine this area utlizing subjects as active agents in the classification of their own attributions. This approach was made possible with the introduction of the Causal Dimension Scale (CDS) by Dan Russell in 1982. With a newly revised version of the scale, the Causal Dimension Scale II (CDSII) (McAuley, Duncan, & Russell, 1992) now available, it is important to once again reexamine attributions made from these two perspectives.

Although evidence for the reliability and validity of the CDSII has been provided by the authors (McAuley et al., 1992) the instrument has yet to be tested in a competitive field setting. This study is an initial attempt to do so.

The purpose of this study is (a) to examine attributions in a team environment, (b) to compare attributions of winners and losers competing in a championship tournament at an elite level of developmental volleyball (midget level, 14 -16 years of age), (c) to utilize a team sport to replicate the results that led Mark, Mutrie, Brooks, and Harris (1984) to their reformulation of the self-serving bias, (d) to compare attributions made from an individual performance perspective with those made from a team performance perspective using an instrument that allows the subject to be an active agent in the classification of his/her causal ascriptions, (e) to explore possible gender differences within a comparatively equal competitive situation, (f) to employ and test the newly revised Causal Dimension Scale (CDSII - McAuley, Duncan, & Russell, 1992) in a field setting involving tournament competition.

Significance of the Study

Attribution research involving competition and sport has been very popular throughout the past decade. Typically, in this research, attributional statements are obtained following achievement outcomes. These statements have been compared on the basis of winners versus losers, individual sports versus team sports, and males versus females. The results of these comparisons have not been consistent between studies.

That findings from these studies have been equivocal may be largely the result of differences in the methodological approaches taken by the various researchers. These differences may be grouped into five main areas which have possibly confounded the results: (1) confounds introduced through a variety of strategies used to translate causal attributions into causal dimensions, (2) confounds introduced by comparing attributions of athletes involved in individual sports to those made by athletes involved in team sports, (3) confounds introduced through failure to recognize the distinction between attributions based upon perceived outcome and those based upon actual outcome, (4) confounds introduced by assuming consistent attributional patterns between males and females, (5) confounds introduced through possible discrepancies within the controllability subscale of the Causal Dimension Scale (Russell, 1982).

In addition to the above, the meaning an achievement situation may have to an athlete can be a contributory factor in the type of causal attributions made by the athlete

(Luiginbuhl & Bell, 1989; Luiginbuhl, Crowe, & Kahan, 1975). It is therefore difficult to make accurate comparisons of attributional patterns obtained across a wide variety of situational contexts. Intuitively, artificial or imagined situation would be less meaningful than those real-life events typified by participation in competitive sports. Due to possible descrepancies in the level of ego-involvement, it does not make sense to compare attributions obtained in a laboratory setting with those made in a field setting. Nor, following a similar line or reasoning, does it make sense to compare attributions obtained from physical education classes with those obtained from athletes involved in collegiate competitions. To allow for comparisons of causal attributions to be made across differing perspectives and gender, it is important that all subjects be ego involved to a similar level. This can be accomplished through the measurement of attributions made during a common competitive environment such as is provided through tournament competition in the sport of volleyball. By selecting specific matches from within a championship tournament (such as matches from the first round of play, and matches from the first round of playoffs), a similar level of ego involvement for all athletes can be expected.

This study represents an intital attempt to satisfy these concerns.

Statement of the Problem

The self-serving bias, as evident in the internalization of success and externalization of failure, has not been demonstrated consistently in competitive sporting situations (Grove, Hanrahan, & McInman, 1991; Mutrie, Brooks, & Harris,1984). This may be due to the existence of norms operating within the sport environment that work against the manifestation of this bias (Scanlan & Passer, 1980b).

The drive to explain the events contributing to specific outcomes or to protect one's self-image within the context of competitive sport might lead to the expression of this bias along dimensions other than the locus of causality (McAuley, 1985; McAuley & Gross, 1983; Riordan, Thomas, & James, 1983; Scanlan & Passer, 1980a). Recent studies (Grove et al., 1991; Mark, Mutrie, Brooks, & Harris,1984) have provided evidence that the self-serving bias emerges when attributions of winners and losers are compared relative to the stability and controllability dimensions.

The Causal Dimension Scale (Russell, 1982) utilized in the above studies has been shown to have had shortcomings in the controllability subscale (McAuley & Gross, 1983; Russell, McAuley, & Tarico, 1987; Vallerand & Richer, 1988). Confusion pertaining to the assignment of ascriptions to the controllability dimension might have had a bearing on the results obtained in these studies. McAuley, Duncan, and Russell (1992) have recently revised the Causal Dimension Scale in an attempt to rectify this problem.

Further research is required to establish the consistency of the self-serving bias as reformulated by Mark et al. (1984) across a variety of situational contexts as may exist within athletic competitions. This study is an attempt to utilize the revised Causal Dimension Scale (CDSII) in a competive field setting to replicate their results in a team sport environment.

Objectives of the Study

1. Evidence has been provided that suggests that the self-serving bias as manifested through the internalization of success and externalization of failure does not exist within the competitive sport environment. Hypothesis 1: It is hypothesized that both successful and unsuccessful athletes will attribute outcomes to internal causes.
2. Evidence has been provided for the reformulation of the self-serving bias along the dimensions of stability and controllability. The CDSII (McAuley, Ducan, &

Russell, 1992) has been designed to clear possible confounds introduced through the controllability subscale. To allow for expectations of future success, athletes involved in failure situations must see the cause of this outcome as changeable. Athletes are encouraged to assume personal responsibility for their performance. Hypothesis 2: It is hypothesized that successful subjects will attribute outcomes to causes that are stable and personally controllable, unsuccessful subjects will attribute outcomes to causes that are unstable and personally controllable.

3. Evidence has been provided that supports the existence of a team-serving bias within team sports. This bias in favor of the team serves to subordinate personal needs to team needs. Hypothesis 3: It is hypothesized that attributions made from an individual performance perspective will not differ from those made from a team performance perspective.
4. Evidence has been provided that supports the consistency of attributions between gender among athletes involved in personally meaningful activities. This is especially true in situations of ego involvement. Hypothesis 4: It is hypothesized that the attributional patterns of males and females will be similar.

Delimitations

The scope of the study was delimited as follows:

1. The study was restricted to the team sport of volleyball.
2. The sampling of subjects was delimited to athletes from provincial volleyball teams as selected to represent the four Western Canadian provinces (British Columbia, Alberta, Saskatchewan, and Manitoba) for study 1 and athletes from

4A[1] highschool volleyball teams qualifying for the provinical final tournament for study 2.

3. The study involved 14-18 yr. old (midget and highschool level) athletes only.
4. The study involved male and female athletes (N = 147 study 1 and N = 144 study 2).

Limitations

The following will be limitations of the study:

1. Existing teams were used for the study and no attempt was made to select teams at random. All teams registered in the tournament were used in the study.
2. Subjects were not randomly assigned to groups.
3. All responses to the CDSII were accepted as given. As with any study using some form of questionnaire, the results will be relevant only if the items are answered honestly and sincerely.

---

[1] High schools with a student population of over 800 students

REVIEW OF LITERATURE

Introduction

In an attempt to establish an order to life, individuals are seemingly compelled to explain past behaviors and events. The perceived causes of these events are used to explain experienced outcomes and as such provide opportunities to interpret the reasons for behavior. These perceived causes (attributions) are used to help interpret, react to and interact with the events experienced by an individual (Brawley, 1984).

Reflection on past events leads to the formulation of attributions which may impact on future behavior. In particular, those attributions we make in achievement situations involving success and failure affect the effort and persistence we devote to the activity as well as our thoughts and feelings about our performance during the event (Gill, 1980). This is of prime concern to those involved in athletics.

Following performance, an athlete is likely to engage in reflections relative to the outcome of that performance. These reflections have both cognitive and emotional aspects which are likely to impact on subsequent effort and performance. The reasons for success or failure contemplated immediately after an event tend to reflect motivational states. In this regard, attributions furnish clues as to an individual's past success and failure as well as providing indications as to the quality of effort expected in the future. Individuals having experienced feelings of pride and accomplishment as well as expectations for future success are encouraged to continue participation in the activity. Motivation is thereby provided to exert the effort required to improve performance levels. Individuals experiencing feelings of shame coupled with low expectations for future success might experience a decline in performance levels or even choose to discontinue participation.

Coaches, in their post game debriefings, often draw upon their perceived causes of the outcome in an attempt to positively influence future performances. It is the responsibility of the coach to encourage athletes to be realistic and honest in formulating post performance attributions. By influencing athletes to assume responsibility for their own performance and to assume control of those performance aspects within their means, coaches can contribute to increased confidence after successful performances and increased optimism for turning failure into success after unsuccessful performances. By contributing to an increased understanding of the attribution process, research can make an important contribution towards defining those effective coaching behaviors that may be linked to performance enhancement. Of particular interest are those coaching behaviors practiced during post-game debriefings. It is at this time, when there continues to be an emotional connection to the event, that causal ascriptions are most powerful. Self-talk is initiated, arising from the performance evaluation undertaken during the debriefing. Input to that evaluation is being received from many sources. Feedback from coaches and teammates along with each athlete's own self-evaluation all contribute to the formulation of causal ascriptions. The potential for these attributions to influence subsequent performance is likely at its peak during these debriefings. Appropriate coaching feedback in leading the post-game analysis is essential to achieve the desired impact on player attitude and behavior. Through increased understanding of attributional patterns demonstrated by athletes involved in competitive sport, coaches may be better equiped to direct post-performance debriefings.

Attribution Theory

Weiner's (1985) reformulated three dimensional model provides the conceptual framework for much of the attributional research applied to achievement outcomes within sport (McAuley, 1992). Fundamental to the model is the premise that following a competition, athletes will engage in a causal search to determine why a particular outcome occurred. These causal ascriptions (*causal attributions*) - ability, effort, luck and task difficulty - vary according to three causal dimensions: *locus of causality, stability,* and *controllability* (Weiner,1985). The dimensions as described in Weiner's model are seen as being the critical theoretical considerations not the specific attributions themselves (Brawley, 1984; Brawley & Roberts, 1984; Rejeski & Brawley, 1983).

As summarized by McAuley (1992), the locus of causality refers to whether the cause of the performance outcome is perceived to reside within, or is external to, the attributor; the stability dimension concerns the relative variability of the cause over time; and the control dimension determines whether the cause is deemed to be controllable by the attributor or not controllable by the attributor. The locus of causality dimension encompasses such attributions as ability and effort (internal) and task difficulty and luck (external). The stability dimension includes the original attributions of ability and task difficulty (stable), effort and luck (unstable). The controllability dimension includes controllable attributions of ability (stable and internal) and effort (unstable and internal) and uncontrollable attributions of task difficulty (ability of others [stable/external] and effort of others [unstable/external]), and luck (unstable/external)(Cratty, 1989). Recently, it has been advocated that the controllability dimension be further subdivided into a personal control dimension and an external control dimension (McAuley, Duncan, & Russell, 1992). They reason that distinction among dimensions can be argued on both empirical and logical grounds. Logically, a respondent might very well have difficulty classifying a cause as to the controllability dimension that falls ambiguosly in the area of being both uncontrollable personally and yet controllable by others. Take for example, a closely contested match during which the coach substitues a bench player for one of the starters. Subsequently, following the match, if the starter attributes the loss to the substitution, he/she could conceivablly classify that cause as either uncontrollable by him/herself, or controllable by the coach, depending upon which is the most salient cause. A division of the controllability dimension would allow a respondent more options and thereby improve the accuracy of the classification of each ascription. The internal consistency of the controllablity scale has been expressed as a concern among several researchers (McAuley & Gross, 1983; Russell, McAuley, & Tairco, 1987; Vallerand & Richer, 1988). McAuley et al. (1992) provide empirical evidence that supports the division of controllability into personal control and external control scales.

Weiner (1985) has suggested that emotions play an integral role in linking causal dimensions and future behavior. Affect and expectancy are determined by the type of causal attributions made about why a particular event was a success or a failure. The locus of causality (internal/external) and controllability dimensions contribute affective reactions to success and failure (McAuley, Russell, & Gross, 1983). They have found stronger feelings to be associated with internal attributions than with external attributions. The stability dimension is intuitively related to future expectations. Attributions reflecting stability can be postulated as contributing to increased expectations for similar outcomes in the future whereas unstable attributions can be seen as contributing towards expectations of changeable outcomes. Therefore, stable attributions after success contribute to expectations of continued success in the future and as a result, persistence in those behaviors perceived as contributing to successful outcomes is reinforced. Unstable attributions for failure allow the attributor to expect different results in future performances and thereby increase the subjective probability of success (McHugh, Duguin, & Frieze, 1978). The controllability dimension also affects behavior in that what is perceived as being within personal control is more apt to solicit responses that impact on maintaining or improving effort and ability.

Interpreting attributions for success and failure may have important implications in the understanding of behavior in achievement settings within the sport environment. From this perspective, several issues have emerged in the current literature: self-serving bias, attributions of individuals in team sports, gender differences, and methodological concerns.

Self-serving bias

Several studies have examined differences in the patterns of attributions made by winners and losers. A number of these studies have reported a tendency for winners to make more internal attributions (take credit for good outcomes) and losers to make more external attributions (deny responsibility for bad outcomes). This tendency has been labeled the *self-serving bias.* Attributional responses to success or failure that reflect this bias may be based on motivational (to protect self-esteem) or on cognitive processes (to make sense out of events). Although the exact mechanisms underlying this phenomenon are open to debate, there does exist a general acknowledgment of its existence (Tetlock & Levi, 1982; Weary-Bradley, 1978; Zuckerman, 1979).

Research on self-serving bias involving competition and sport has provided results that are equivocal. Some studies have found that a hedonic bias exists only after the success condition, in that winners have been found to make more internal attributions for success than losers do for failure (McAuley & Gross, 1983; Riess & Taylor, 1984; Riordan, Thomas, & James, 1985; Spink & Roberts, 1980). Others have found that both winners and losers make internal attributions (Gill, Ruder, & Gross, 1982; McAuley, Russell, & Gross, 1983; Zientek & Breakwell, 1992). The extent of ego involvement generated by the activity and the situational constraints (such as peer pressure and society norms) associated with participation are two possibilities for this discrepancy.

Luginbuhl, Crowe, and Kahan (1975), suggested that self-attributions for success and failure may vary as a function of the importance of the task to the subject. Luginbuhl and Bell (1989) tested this possibility in a study involving male track-and-field athletes. Their results suggest that the degree of ego involvement generated in the achievement situation may well be a factor in the type of causal attributions formulated. Losing athletes who were highly ego involved demonstrated a tendency towards externalization of attributions. Athletes similarly engaged in a success situation made internal attributions.

Scanlan and Passer (1980b) emphasize the uniqueness of achievement situations within the sport environment. They have suggested that there exists within sport, norms and situational constraints that do not allow individuals to externalize failure. As explained by the authors, these results may be indicative of an athlete's efforts to balance a desire to protect self-esteem on one hand and act within situational constraints on the other. This *attributional dilemma* described by Scanlan and Passer may encourage athletes to adjust their attributions along dimensions other than the locus of control. A self-serving bias within sport might therefore be manifested along either the control or stability dimension or perhaps in some combination of these two dimensions.

Several studies comparing attributions of winners and losers have found that the self-serving bias has been evident along the stability and control dimensions (Grove, Hanrahan, & McInman, 1991). In research involving non sport situations, Russell (1982) and Vallerand and Richer (1988) have found success attributions to be more stable and controllable than those in failure situations. Mark, Mutrie, Brooks, and Harris (1984), found that in racquetball and squash competition winners made attributions to more stable and more controllable causes than losers and used this as the basis for their reformulation of the self-serving bias. This reformulation has found recent support from a study involving basketball players (Grove et al., 1991). The authors explain that by altering attributions along the stability and control dimensions rather than the locus dimension, athletes are able to present themselves acceptably irregardless of outcome. Winners can attribute the results to relatively stable factors which are under personal control thereby maintaining persistence and intensity and contributing to an expectancy of future success. Losers can maintain self-esteem by making attributions to less stable and less controllable factors. By making attributions that are high in locus of causality and low (relative to winners) in stability and controllability, losers are able to focus on changing those behavioral characteristics that may enable them to expect a more positive performance in the future. This action reflects both the motivational aspect of the self-serving bias (ie. to protect self-esteem) and the information processing aspect (ie. to satisfactorily explain outcome and adjust expectations of future performance).

In studies employing Russell's Causal Dimension Scale (1982) to measure ascriptions according to Weiner's (1985) three dimensional classification of attributional dimensions, two major trends can be identified. First, athletes generally tend towards more internal and controllable attributions than external and uncontrollable. Second, winners tend towards more stable attributions than losers (Grove, Hanrahan, & McInman, 1991; Mark, Mutrie, Brooks, & Harris, 1984; McAuley & Gross, 1983; Tennenbaum & Furst, 1985)

Attributions of Individuals in Team Sports

Studies have found evidence supporting the existence of the self-serving bias when examining attributions pertaining to individual performance from within a team environment (Bird & Brame, 1978; Bukowski & Moore, 1980; Roberts, 1975). Bird & Brame report that after successful outcomes, athletes internalize attributions for both self and team. However, after failure, athletes rated individual effort higher than team effort and their resultant attributions tended to focus blame on the team as opposed to on themselves. These results concurred with the earlier work of Iso-Ahola (1977, [cited in Bird & Brame, 1978, p. 261]) and Roberts (1975).

In his study, Roberts concluded that attributions made from a team perspective were more inclined to reflect a cognitive approach as players made their ascriptions in a rational information processing manner. However, attributions made from an individual perspective were more inclined to protect self-esteem. As he describes it, players involved in his study seemed capable of disassociating themselves from their team according to the way they perceived outcomes. If the outcome was perceived as unsuccessful, athletes tended to minimize their contribution. On the other hand, if the outcome was percieved as successful, the tendency was to maximize their role.

Results contrary to this were obtained by Gill (1980). In her study of teams in a laboratory setting, she found results that can be interpreted as reflecting a team-enhancing strategy or norm. Attributions obtained from the subjects in her study reflected a tendency for winners to assign responsibility for the success primarily to their team. Members of losing teams accepted primary responsibility for the loss themselves. Other studies (Bird, Foster, & Maruyama, 1980; Taylor & Doria, 1981) also support this *team-serving bias*. In a field study involving intramural volleyball Gill, Ruder, and Gross (1982) determined that athletes, when given the opportunity to reply to open-ended attributions, choose overwhelmingly to select attributions reflecting the team point of view. This again reflects the significance of the team concept in team sports.

Evidence has been provided indicative of the existence of certain social constraints and norms within the group situation which serve to align an individual's attributions for him or herself with those of the team (Scanlan & Passer, 1980). This would tend to confound the comparison of results obtained through research involving individual sports with results obtained through research involving team sports. With the introduction of an additional factor - team cohesion, comparisons of attributions made by athletes involved in individual sports with those of athletes involved in team sports becomes more difficult. In a study of collegiate basketball players Bird, Foster, and Maruyama (1980) found that the degree of team cohesion did not affect the consistency between self and team attributions. Cohesion did however have a significant effect on the operation of the team-serving bias. Under the failure condition players on highly cohesive teams, as predicted by the team-serving bias, tended to make team attributions to luck and task difficulty (external dimension).

Gender Differences

Studies of the attributional patterns of male and female athletes have also provided discrepant results. McHugh, Duguin, and Frieze (1978) have suggested that generally females tend to make more frequent use of externality in attributions after both successful and unsuccessful outcomes. They go on to qualify this statement by explaining that they would expect this difference to disappear among elite level athletes. Croxton and Klonsky (1982), found that after successful outcomes, gender differences were less likely to occur providing that task involvement was equally meaningful for both males and females. This observation is supported in several other studies (Scanlan & Passer, 1980; Gill, 1980; Spink & Roberts, 1980).

Gender differences have been reported in other studies (Bird & Williams, 1980; Riordan, Thomas, & James, 1983; Tennenbaum & Furst, 1985). Bird and Williams found that during adolescence males may be more internal in their attributions (ascribe performance outcome to effort), and that females may be more external in their attributions (ascribe performance outcome to luck). In a study involving adult racquetball players Riordan et al. (1983) found that both males and females demonstrated an internality bias after wins; however after losses, females were more external in their attributions and males were more internal. Tennebaum and Furst (1985) describe an overall tendency for males to be more internal than females. Frieze, McHugh, and Duguin (as cited in Croxton & Klonsky, 1982, p. 400) provide evidence that males tend towards more stable attributions than females.

Methodological Issues

The results pertaining to attribution theory as applied to achievement situations within the sport environment have been inconsistent. This may very well be explained by the lack of consistency within the various methodological approaches taken in the various studies. Comparisons of the results of studies in this area is difficult for three reasons. First, in some cases individual sports were used, while others used team sports. Second, some studies relied upon objective outcomes as the basis for causal ascriptions, others emphasized subjective outcomes. Third, some studies have relied upon investigators to classify attributions as to causal dimensions, others have utilized the subjects as active agents capable of classifying their own attributions.

It is difficult to compare attributions obtained from participants in individual sports to those obtained from participants in teams sports due to the confounds introduced in a group environment. Situational constraints and norms exist within a team that encourage the suppression of individual goals and objectives in favor of team goals and objectives. Also, athletes from individual sports are more directly accountable for their own behavior. They are neither responsible to anyone nor are they reliant upon anyone for their performance. In this regard, individual athletes are more limited than team athletes in assigning attributes to others or to the environment (Tennenbaum & Furst, 1985). This may well account for the fact that these authors found individual athletes to have a tendency to be more internal in their attributions of outcomes following unsuccessful performances than athletes involved in team competitions.

The second concern mentioned above deals with distinguishing between perceived outcome (subjective) and win/loss outcome (objective). The assumption that successful outcomes are reflected only through wins and unsuccessful outcomes are reflected only through losses might well be unsupportable. Depending upon goals set in relation to achievement situations in sport, individuals might perceive their performance to be successful even after losses. Individual and team goals that reflect performance as opposed to outcome can be achieved within such a scenario (achieving personal best, achieving personal goal). Likewise, athletes clearly superior to their opposition might well consider their performance to be unsuccessful even after a win if they were unable to attain previously determined goals for that competition (personal worst performance, failure to achieve personal goal or team goal). For these reasons, success and failure might best be conceptualized as psychological states rather than as being indicative of objective levels of performance as reflected in win/loss statistics (Maehr & Nicholls as cited in Spink & Roberts, 1980, p. 237). Spink and Roberts were able to find support for this contention through their study of physical education students involved in racquetball competitions. They go on to suggest that perceived success is as important as are objective outcomes in the formulation of causal ascriptions. Roberts and Duda (1984) explain that an athlete's perception of outcome (successful or unsuccessful) is based upon a variety of factors such as opponent difficulty, long and short term goals etc. and is therefore not necessarily limited to objective win/loss results. McAuley produced further support for the importance of perceived outcomes in his study of gymnastics. He found that an athlete's perception of the outcome (successful or unsuccessful) was actually a more accurate predictor of causal attributions than were actual performance scores. Several studies have supported the expansion of the outcome category from the limiting perspective of win/loss to a more open perspective of successful/unsuccessful (Brawley, 1984; Leigh & Prapavessis, 1989; Rejeski &

Brawley, 1983; Scanlan & Passer, 1980; Spink & Roberts, 1980). However, Leigh and Prapavessis do add a qualifying statement in description of a possible tendency among elite athletes to view objective and subjective outcomes as being the same. Bird, Foster, and Maruyama (1980) in their study of intercollegiate athletes also report a strong relationship between actual team outcome and subjective outcome as determined through self-report of perceived outcome.

The third area of concern relating to methodological issues pertains to the actual classification of causal attributions. Measurement has been a factor contributing to the inconsistency of the results in attributional research (Brawley & Roberts, 1984; Mark et al., 1984; McAuley, 1992; Rejeski & Brawley, 1983; Roberts & Pascuzzi, 1979; Russell, 1982). Although there has been general agreement as to the importance of the need to classify attributions according to the causal dimensions identified in Weiner's (1985) model, the method of doing so has been left up to the individual researcher. Some collect responses to open-ended statements and then have these classified by the researcher and assistants. This procedure has led to what Russell (1982) has termed the "fundamental attributional researcher error". The subject's perception of an attribution need not necessarily agree with that of the researcher. A response such as "I was not as good as my opponent" might be classified internally (my ability level is low) or as externally (my opponent is better). Russell suggests that the only method of ensuring accurate classification is to allow the respondent to record his or her own perception of the causal attribution in terms of causal dimensions. Consequently, athletes are allowed to interpret the meaning of their own causal statements and in doing so become active agents in the process of classification. Russell (1982) designed the Causal Dimension scale to allow researchers to facilitate this approach and quantify the data collected. Several authors have recently incorporated the CDS in their research (Grove, Hanrahan, & McInman, 1991; Mark, Mutrie, Brooks, & Harris, 1984;

McAuley, 1985; McAuley & Gross, 1983; Tennenbaum & Furst, 1985). As reported by McAuley, Duncan, and Russell (1992), the reliability and validity of the CDS has been supported by several authors. Although evaluation of the psychometric properties of the CDS have been generally supportive, concerns relative to the controllability subscale have been raised (McAuley & Gross, 1983; Russell, McAuley, & Tarico, 1987; Vallerand & Richer, 1988). Concerns pertaining to the controllability dimension itself have been presented in the literature for some time. Gill, Ruder, and Gross (1982) have suggested that controllability be re-categorized to narrow controllable to mean under the control of the attributor. Uncontrollable was suggested to reflect either no control or control exerted by someone other than the attributor. Although supporting the psychometric properties of the CDS, Vallerand and Richer (1988) also recommended changes to the controllability subscale. They suggested that controllability be subdivided into external and internal components. McAuley, Duncan, and Russell (1992) have acknowledged these concerns and have incorporated these suggestions into their newly revised version of the CDS, the CDSII.

Summary

After engaging in achievement situations, individuals typically reflect upon the experience and in doing so attempt to explain reasons for the outcome as it had occurred. This reflection consists largely of asking a series of "why?" questions. Answers to these questions (attributions) are used by individuals to organize and provide meaning to those events in which they are involved (Tetlock & Levi, 1982). Attribution theory deals with interpretation of answers to "why?" questions.

According to Weiner's (1985) three dimensional model, attributions can be interpreted along three causal dimensions: locus of causality, controllability, and stability. Recently, McAuley, Duncan, and Russell (1992) have recommended subdividing the controllability dimension into a dimension of personal control and a dimension of external control. Attributions made by individuals in relation to outcomes they have experienced can be classified as to one or the other of these four dimensions. Through the classification of an individual's explanations for outcomes experienced in achievement situations, a researcher is able to garner information relative to the attributor's perception of the event, and his/her interpretation of both self-behaviors and the behaviors of others. Because of the mediational role attributions play between perception and behavior, an athlete's subsequent behavior might well be influenced by the type of attributions formulated during competition.

Through an understanding of the attributional process, coaches can develop skills to be used in helping athletes to interpret their performance in a positive manner regardless of whether the outcome was successful or not (Rudisill, 1989). Athletes can be encouraged to attribute success to internal, stable, and controllable causes and failure to internal, unstable, and controllable causes. Through attributional training, coaches can influence the type of attributions chosen by his/her athletes. Rudisill goes on to suggest that by selecting the appropriate attributions, athletes can positively affect future expectations of success, persistence behavior, and performance levels.

Studies have indicated that the formulation of attributions may be subjected to the influence of several factors. Firstly, to maximize positive feelings about success and to minimize negative feelings about failure, the formulation of attributions may be influenced by what has been termed the self-serving bias (Tetlock & Levi, 1982; Weary-Bradley, 1978; Zuckerman, 1979). This bias is manifested in the predominance of internally classified attributions during success and externally classified attributions during failure. Although results from the sport domain have yielded equivocal results (McAuley, 1992) recent studies have supported the existence of the self-serving bias in a reformulated form (Grove, Hanrahan, & McInman, 1991;

Mark, Mutrie, Brooks, & Harris, 1984). The existence of this bias as generalized across a variety of different sports is yet to be established.

Secondly, the dynamics of the group interactions occurring within the team sport environment may serve to align an individual's attribution for self with those made for the team. This makes it difficult to compare attributions made by athletes involved in individual sports with those made by athletes involved in team sports.

Thirdly, gender differences in attribution formulation have not been conclusively decided. Some studies have indicated a general tendency for females to make more use of external attributions than males regardless of outcome (McHugh, Duguin, & Frieze, 1978). Others have indicated that differences, if any, are subject to developmental stages (Bird & Williams, 1980). Some have indicated that there are no differences (Scanlan & Passer, 1980; Gill, 1980; Spink & Roberts, 1980) and yet others have indicated that ego-involvement is an important factor in these results (Croxton & Klonsky, 1982).

A further issue has been identified as impacting on attributional research. Methodological approaches to the formulation and classification of attributions have varied throughout the various studies exploring attributions in sport. This fact makes the comparing and generalizing from the results difficult (McAuley, 1992). It is only through the utilization of a valid and reliable instrument which allows the attributor to actively classify his/her own attributions based on perceived outcomes that the necessary conditions for generalizability and comparability may be met. With such an instrument, research involving actual competition is capable of returning information applicable to practitioners in the field.

METHODS AND PROCEDURES

Athletes participating in the 1993 Western Canada Midget Elite Volleyball Championships held in Edmonton, Alberta served as subjects for study 1. Athletes participating in the 4A High School Provincial Volleyball Championships also held in Edmonton, Alberta served as subjects for study 2. Ninety-three percent of the total possible athletes available in study 1 volunteered to participate in the study (N = 147) as did eight-three percent of those available for study 2 (N=144). It is assumed that these numbers reflect an adequate representation of the hypothetical population of all 14 - 18 year old male and female athletes participating in developmental volleyball as organized by provincial volleyball associations and high school athletic programs.

The Causal Dimension Scale II (CDSII) (McAuley, Duncan, & Russell, 1992) was administered twice; once after each team's first match in the tournament, and again after each team's first match in the play-offs. Due to problems experienced in study 1 associated with administration of the questionnaire during the play-offs, the second administration of the CDSII was dropped from study 2.

Upon conclusion of the identified match, the participating athletes were directed to classrooms near the gym in which they could work undisturbed. The players were then asked to complete the questionnaire prior to any post-competition debriefing directed by the coaching staff. Coaches were permitted to quietly observe their athletes during the completion of the questionnaire; however, they were instructed not to take an active role other than to help clarify instructions. It was felt that their presence supported the importance of the study and ensured the quality of responses obtained from the athletes. Coaches were briefed as to the role they were to play in the administration of the questionnaire during the coaches' meeting held prior to the commencement of competition. They were permitted to clarify instructions only and were asked to refrain from assisting in the responses made by their athletes to the various items on the questionnaire. Coaches were also asked to record any difficulties encountered by the athletes during the completion of the CDSII.

Instrument

The Causal Dimension Scale II (CDSII) is a 12-item instrument developed and validated by McAuley, Duncan, and Russell (1992). It contains four subscales each of which has three items that are designed to measure locus of causality, stability, external control, and personal control. Subjects in each case are asked to complete the twelve CDSII items in relation to their response(s) to an initial open-ended lead. In the lead, each player is asked for the outcome of the match (win/loss), his/her goal(s) for the match (team/personal), to subjectively evaluate his/her performance (team/individual) in relation to these goal(s), and to provide a reason(s) explaining why he/she (or their team) was successful/unsuccessful in attaining the goals set prior to the match.

Using this response to guide the completion of the remainder of the questionnaire, subjects actively classify their attribution(s) by responding to each item which represents one of the four different subscales. Each item guides the athletes to make judgements about the degree to which the cause is "inside of you" (locus of causality), "stable over time" or "variable over time" (stability), "over which others have control" or "over which others have no control" (external control), "manageable by you" or "not manageable by you" (personal control).

Each response is made by selecting along a 9-point Likert type scale ranging between verbal anchors such as those listed above. Subscale scores are then obtained by summing the subject's responses to the three items on each of the four subscales. Scores for each of the subscales can range from a low of 3 to a high of 27. A midpoint of 15 was selected to mark the division between extremes on the scale. The higher numbers represent attributions that are more internal, more stable, reflect more external control, or reflect more personal control.

The CDSII was specifically designed to allow subjects to actively classify their own attributions according to a modified version of Weiner's (1985) three dimensional model of causal attributions. The psychometric properties of the scale as reported by the authors (McAuley, Duncan, & Russell, 1992), support its reliability and validity.

Cronbach's coefficient alpha was calculated to provide an internal consistency measure for each of the four subscales. As reported in the study above, these were; locus of causality: .67; stability: .67; personal control: .79; and external control: .82.

A confirmatory factor analysis using the LISREL VII computer program provided a chi square test goodness of fit index of .958 (values of .90 and better indicate that the model accounts for the data well).

The CDSII as used in study 1 was modified to reflect the performance perspective to be taken by the respondent. Participants were asked to complete the questionnaire twice. First they were asked to formulate their attributions from an individual performance perspective, and then they were asked to use a team performance perspective. The wording of the individual items of the CDSII were adjusted to reflect these two different perspectives (Appendix A-1 and Appendix A-2). For study 2, an additional outcome oriented perspective was included and the athletes were asked to respond to the various items using each of three different performance perspectives (outcome, individual and team). Also, slight adjustments were made to the wording used by the questionnaire in an attempt to clarify the intent of each item (Appendix C-1, Appendix C-2, and Appendix C-3). All participants were asked to formulate and classify causal attributions from each of the performance perspectives. Participants were also asked to rate the success of their own and their team's performance on a 9 point

Likert-like scale. A rating of 1 was indicative of an unsuccessful performance, a 9 indicated a successful performance.

Statistical Methods

Statistical analyses of both study 1 and study 2 employed the S.P.S.S. (version 6.0) computer program. The data were initially analyzed using an analysis of variance with repeated measures on the perspective factor. A conservative regression approach was undertaken using an analysis of the various factors based upon scores unique to each factor. The syntax file used in the analysis is provided in Appendix A-4. A further analysis was conducted based on the subjective groupings of successful/unsuccessful as opposed to purely objective groupings of winners/losers. Because athletes were able to rate their individual performances differently from their team's performance, grouping as to successful/unsuccessful was not necessarily consistent between the two different perspectives. Subsequently, an ANOVA without repeated measures was utilized. Significant differences were accepted at the alpha level p is less than 0.01, where p is the probability that no difference exists between means.

STUDY 1

Design

A two gender by two outcome (winners, losers) by performance perspective (individual, team) design was used in the study.

The Causal Dimension Scale II (CDSII) (McAuley, Duncan, & Russell, 1992) was administered twice. Once after each team's first match in the tournament, and again after each team's first match in the play-offs. Demographic data including name, team and province was collected from each participant to facilitate matching questionnaire responses from match one with those from matchl two. Each athlete was also asked their gender, position, degree of personal involvement in that particular competition, and the degree of importance of the competition. To determine the latter, each athlete was asked to respond on a 9 point Likert-like scale (see Appendix A-3). Confidentiality was maintained by sealing the completed questionnaires in team envelopes and storing them securely until data analysis began after the tournament had been completed. To ensure anonymity, once the completed questionnaires were matched, personal names as well as team names were removed.

Subjects

Athletes participating in the 1993 Midget Elite Volleyball Championships held in Edmonton, Alberta served as subjects for the study. The tournament involved male and female athletes from the midget age category (14-16 years old). The selection process for these teams varied somewhat from province to province however the two teams from each province represented the top level developmental athletes participating in that province's volleyball program.

The eight teams in each of the male and female divisions were divided into pools of four teams, one from each of the four western provinces. One of the male teams and one of the female teams decided not to participate in the study. Both coaches indicated an unwillingness to impose further on their athletes during the competition. This reduced the total possible participants to 82 females and 76 males. Of these, 76 (93%) of the females and 71 (93%) of the males volunteered to participate in the study.

During the playoffs, a coach from one of the female teams withdrew his/her team prior to the second administration of the CDSII. A delay in the tournament schedule which compounded the time constraints imposed upon his/her athletes, made it difficult to continue in the study. Also, two additional male teams withdrew from the study. This reduced the total participating teams to six female (72 potential subjects) and five male teams (54 potential subjects). Of these, 63 (88%) of the females and 48 (91%) of the males volunteered to participate in the second administration of the questionnaire.

Procedures

An explanation of the purpose of the study along with its associated administrative details was distributed to the participating coaches through the various provincial sport associations. The final administrative details were provided at the preliminary coaches meeting held prior to the tournament in Edmonton. During this meeting, the instructions for completing the questionnaire were discussed along with the procedures to be followed during its completion. Coaches were introduced to their role and questions were answered clarifying their expected involvement beginning with receipt of the questionnaires and ending with their return to the research assistant assigned to their team.

Research assistants handled the distribution and collection of the questionnaires. The coaches themselves administered the questionnaires to their athletes and were able to answer questions pertaining to the completion of the CDSII. They were also asked to supervise their athletes to ensure that they worked independently while completing the questionnaire.

The players were asked to complete the questionnaire immediately following the conclusion of the identified matches prior to any post-competition debriefing from the coaching staff. Upon the conclusion of the match, the participating athletes were directed to rooms near the gym in which they were able to work undisturbed.

Research assistants sealed the completed questionnaires in team envelopes which were then returned to the principal investigator. This same procedure was repeated again after each team's first playoff match.

The CDSII was modified to reflect either an individual performance perspective or a team performance perspective (see Appendix A-2 and A-1). During both the first and second administration of the CDSII, each of the participants was asked to respond to both forms of the questionnaire. Participants were asked to use the individual questionnaire to formulate and classify causal attributions from an individual performance perspective. They were then asked to repeat the process from a team perspective using the team questionnaire.

Results

The data collected from the round robin matches and the playoff matches were analyzed independently. Following competition and prior to responding to the CDSII, athletes were asked to indicate the significance of the match on a 9 point Likert-like scale with anchors of 1 (not important) and 9 (very important). In both instances, athletes of each gender felt that the matches were important to them. For the round robin matches, both males and females indicated an average importance of 7.3. For the playoffs, males indicated an average importance of 8.4, females an average of 8.1. These results were taken to imply a high level of ego involvement during the competition.

A univariate analysis of variance (ANOVA) with repeated measures was used to analyze the data obtained for each of the four causal dimensions as grouped according to objective outcome (win/loss). The design was a 2 X 2 X 2 factorial, with gender (male vs. female), match outcome (win vs. loss), and performance perspective (team vs. individual) as the independent variables. Each of the four subscales of the CDSII; locus of causality, stability, personal control, and external control served in turn as the dependent variable. Performance perspective served as the basis for the repeated measures. A similar univariate analysis of variance (ANOVA) was also used to analyze the data as grouped according to subjective outcome (successful/unsuccessful). However during this analysis, repeated measures on the dependent variable could not be used. On occassion athletes would rate performance outcome as being successful from an individual perspective and unsuccessful from a team perspective or vice versa. Due to differences in subjective evaluation that occurred between individual performance perspective and team performance perspective and the effect these differences had on groupings, repeated measures based on the performance perspective was no longer possible.

The data obtained from the round robin matches were analyzed separately from the data obtained from the play-off matches. Only those respondents indicating either an average or a major amount of court time were included in the data analysis of responses from the individual perspective. All responses to the team version of the questionnaire were included in the analysis. The raw scores of all subjects involved in the study are presented in Appendix B.

The tables presented illustrate the differences in means found to exist for each of the dependent variables (the four causal dimensions) based on comparisons determined by the various groupings of athletes (independent variables). The significance of these differences is also reported in the tables that follow. Unless otherwise stated, 0.01 has been used as the level of significance for any significant differences.

Locus of causality

Round Robin

Tables 1 and 2 summarize the analysis of variance for locus of causality measured between groups after the round robin matches for objective outcome and subjective outcome. Significant F's were obtained for outcome and perspective.

TABLE 1

ANOVA FOR LOCUS OF CAUSALITY ROUND ROBIN OBJECTIVE OUTCOME

Between-Subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN	3176.42	104	30.54	
GENDER	12.88	1	12.88	0.42
OUTCOME	265.40	1	265.40	8.69*
GXO	0.37	1	0.37	0.01

F's of 6.90 (D.F. of 1,104) were required for significance at the 0.01 level
* Significant at the .004 level

Within-subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN	1520.50	104	14.62	
PERSPECTIVE	266.92	1	266.92	18.26*
GXP	51.70	1	51.70	3.54
OXP	12.95	1	12.95	0.89
GXOXP	2.27	1	2.27	0.16

F's of 6.90 (D.F. of 1,104) were required for significance at the 0.01 level
* Significant at the .001 level

TABLE 2

ANOVA FOR LOCUS OF CAUSALITY ROUND ROBIN SUBJECTIVE OUTCOME

Between-Subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN+RESIDUAL	5081.94	247	20.57	
GENDER	48.38	1	48.38	2.35
OUTCOME	169.20	1	169.20	8.22 *
PERSPECTIVE	384.14	1	384.14	18.67 *
GXO	3.40	1	3.40	0.17
GXP	79.65	1	79.65	0.50
OXP	0.17	1	0.17	0.01
GXOXP	122.53	1	122.53	5.96

F's of 6.76 (D.F. of 1,247) were required for significance at the 0.01 level
* Significant at the .001 level

Table 3 summarizes the combined group means that were obtained from the data collected after the round robin matches for the locus of causality dimension for both objective and subjective outcome. Means returning a significant effect are in boldface.

TABLE 3

SUMMARY OF LOCUS OF CAUSALITY COMBINED MEAN SCORES ROUND ROBIN PLAY

	OUTCOME		GENDER		PERSPECTIVE	
	Winners	Losers	Males	Females	Individual	Team
ANALYSIS						
Objective	**20.63**	**18.39**	19.82	19.37	**18.48**	**20.74**
n =	82	65	71	76	108	147
Subjective	**20.25**	**18.87**	19.83	18.87	**18.00**	**20.71**
n =	91	56	71	76	108	147

Note: Means returning significant differences in boldface

The results indicate that winners differ significantly from losers in attributions made pertaining to the locus dimension. These results were consistent between the objective and subjective outcome approaches. Although a significant difference was found to exist between winners and losers, the combined means, as illustrated in table 3 above, indicate that both winners (*M* = 20.63 [Objective], *M* = 21.47 [Subjective]) and losers (*M* = 18.39 [Objective], *M* = 19.26 [Subjective]) favored attributions of an internal nature. Significant effects for performance perspective were also returned from each of the analyses. These effects indicate that attributions pertaining to the dimension of causality were made differently from an individual performance perspective than they were from a team performance perspective. Athletes tended to attribute more of their performance outcome to internal causes from a team perspective (*M* = 20.74 [Objective], *M* = 20.71 [Subjective]) than from an individual perspective (*M* = 18.48 [Objective], *M* = 18.00 {Subjective]).

Play-offs

Tables 4 and 5 summarize the analysis of variance for locus of causality measured between groups after the play-off matches for objective outcome and subjective outcome. Significant F's were obtained from the subjective outcome analysis.

TABLE 4

ANOVA FOR LOCUS OF CAUSALITY PLAY-OFFS
OBJECTIVE OUTCOME

Between-Subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN	3045.52	67	45.46	
GENDER	0.23	1	0.23	0.01
OUTCOME	3.02	1	3.02	0.07
GXO	305.66	1	305.66	6.72

F's of 7.04 (D.F. of 1,67) were required for significance at the 0.01 level

Within-subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN	835.13	67	12.46	
PERSPECTIVE	59.58	1	59.58	4.78
GXP	49.05	1	49.05	3.93
OXP	0.21	1	0.21	0.02
GXOXP	20.70	1	20.70	1.66

F's of 7.04 (D.F. of 1,67) were required for significance at the 0.01 level

TABLE 5

ANOVA FOR LOCUS OF CAUSALITY PLAY-OFF SUBJECTIVE OUTCOME

Between-Subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN+RESID.	4602.72	174	26.45	
GENDER	1.68	1	1.68	0.06
OUTCOME	346.14	1	346.14	13.09 *
PERSPECTIVE	279.88	1	279.88	10.58 *
GXO	5.97	1	5.97	0.23
GXP	14.62	1	14.62	0.55
OXP	74.88	1	74.88	2.83
GXOXP	0.55	1	0.55	0.02

F's of 6.76 (D.F. of 1,174) were required for significance at the 0.01 level
* Significant at the .001 level

Table 6 illustrates the combined group means for the locus of causality dimension for objective and subjective outcome obtained from data collected following the play-off matches. Means returning a significant effect are in boldface.

TABLE 6

SUMMARY OF LOCUS OF CAUSALITY COMBINED MEAN SCORES PLAY-OFFS

	OUTCOME		GENDER		PERSPECTIVE	
	Winners	**Losers**	**Males**	**Females**	**Individual**	**Team**
ANALYSIS						
Objective	21.03	20.99	20.33	20.81	19.62	21.52
n =	59	52	48	63	71	111
Subjective	**21.47**	**19.26**	19.98	20.99	**18.42**	**21.52**
n =	66	45	48	63	71	111

Note: Means returning significant differences in boldface

The results from the play-off matches based on a subjective evaluation of performance outcome were consistent with the objective and subjective results from round robin matches. Winners (*M* = 21.47) scored higher than did losers (*M* = 19.26) and attributions from a team perspective (*M* = 21.52) were rated higher than those made from an individual perspective (M = 18.42)

Stability

Round Robin

Tables 7 and 8 report the results of the analysis of variance conducted on the raw scores collected for the stability dimension. Significant F's were obtained for the outcome effect.

TABLE 7

ANOVA FOR STABILITY ROUND ROBIN OBJECTIVE OUTCOME

Between-Subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN	3694.19	104	35.52	
GENDER	64.63	1	64.63	1.82
OUTCOME	990.40	1	990.40	27.88*
GXO	14.53	1	14.53	0.41

F's of 6.90 (D.F. of 1,104) were required for significance at the 0.01 level
* Significant at the .001 level

Within-subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN	1204.96	104	11.59	
PERSPECTIVE	44.41	1	44.41	3.83
GXP	0.84	1	0.84	0.07
OXP	49.23	1	49.23	4.25
GXOXP	17.15	1	17.15	1.48

F's of 6.90 (D.F. of 1,104) were required for significance at the 0.01 level

TABLE 8

ANOVA FOR STABILITY ROUND ROBIN
SUBJECTIVE OUTCOME

Between-Subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN+RESID.	5930.63	247	24.01	
GENDER	38.91	1	38.91	1.62
OUTCOME	1092.47	1	1092.47	45.50 *
PERSPECTIVE	124.02	1	124.02	5.17
GXO	47.98	1	47.98	2.00
GXP	23.76	1	23.76	0.99
OXP	84.64	1	94.64	3.52
GXOXP	42.81	1	42.81	1.78

F's of 6.76 (D.F. of 1,247) were required for significance at the 0.01 level
* Significant at the .001 level

Table 9 summarizes the combined group means that were obtained from the data collected after the round robin matches for the stability dimension for both objective and subjective outcome. Means returning a significant effect are in boldface.

TABLE 9

SUMMARY OF STABILITY COMBINED MEAN SCORES
ROUND ROBIN PLAY

	OUTCOME		**GENDER**		**PERSPECTIVE**	
	Winners	**Losers**	**Males**	**Females**	**Individual**	**Team**
ANALYSIS						
Objective	**14.97**	**10.39**	13.24	12.52	12.13	13.63
n =	82	65	71	76	108	147
Subjective	**14.48**	**9.91**	12.63	11.77	11.43	12.97
n =	91	56	71	76	108	147

Note: Means returning significant differences in boldface

Results pertaining to the stability dimension indicate that winners and losers perceive the stability of performance outcome in significantly different ways. This difference was consistent from both an objective and a subjective point of view. Winners (*M* = 14.97 [Objective], *M* = 14.48 [Subjective]) credited their performance to more stable causes than did losers (*M* = 10.39 [Objective], *M* = 9.91 [Subjective]).

Play-offs

Tables 10 and 11 summarize the analysis of variance for the stability dimension measured between groups after the play-off matches for objective outcome and subjective outcome. Significant F's were obtained from the subjective outcome analysis.

TABLE 10

ANOVA FOR STABILITY PLAY-OFFS
OBJECTIVE OUTCOME

Between-Subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN	3279.38	67	48.95	
GENDER	0.01	1	0.01	0.00
OUTCOME	73.17	1	73.17	1.49
GXO	27.19	1	27.19	0.56

F's of 7.04 (D.F. of 1,67) were required for significance at the 0.01 level

Within-subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN	523.52	67	7.81	
PERSPECTIVE	20.24	1	20.24	2.59
GXP	29.73	1	29.73	3.81
OXP	1.51	1	1.51	0.19
GXOXP	4.76	1	4.76	0.61

F's of 7.04 (D.F. of 1,67) were required for significance at the 0.01 level

TABLE 11

ANOVA FOR STABILITY PLAY-OFFS
SUBJECTIVE OUTCOME

Between-Subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN+RESIDUAL	4810.44	174	27.65	
GENDER	35.74	1	35.74	1.29
OUTCOME	298.65	1	298.65	10.80*
PERSPECTIVE	6.00	1	6.00	0.22
GXO	44.68	1	44.68	1.62
GXP	12.01	1	12.01	0.43
OXP	2.74	1	2.74	0.10
GXOXP	0.09	1	0.09	0.00

F's of 6.76 (D.F. of 1,174) were required for significance at the 0.01 level
* Significant at the .001 level

Table 12 illustrates the combined group means for the stability dimension for objective and subjective outcome obtained from data collected following the play-off matches. Means returning significant effects are highlighted in bold print.

TABLE 12

SUMMARY OF STABILITY COMBINED MEAN SCORES
PLAY-OFFS

	OUTCOME		GENDER		PERSPECTIVE	
	Winners	Losers	Males	Females	Individual	Team
ANALYSIS						
Objective	13.72	12.35	12.89	13.07	13.31	12.71
n =	59	52	48	63	71	111
Subjective	**13.90**	**10.92**	12.93	11.90	12.62	12.20
n =	66	45	48	63	71	111

Note: boldface indicates significant difference

The results obtained from the play-off matches based on a subjective evaluation of performance outcome are consistent with those obtained from analysis of the round robin matches. Winners (*M* = 13.90) described their performance outcome as being more stable than did losers (*M* = 10.92).

External control

Round Robin

Tables 13 and 14 report the results of the analysis of variance conducted on the raw scores collected for the external control dimension. A significant effect was obtained for the outcome effect from the objective outcome analysis.

TABLE 13

ANOVA FOR EXTERNAL CONTROL ROUND ROBIN OBJECTIVE OUTCOME

Between-Subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN	3064.32	104	29.46	
GENDER	51.93	1	51.93	1.76
OUTCOME	271.42	1	271.42	9.21 *
GXO	34.69	1	34.69	1.18

F's of 6.90 (D.F. of 1,104) were required for significance at the 0.01 level
* Significant at the .003 level

Within-subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN	2603.77	104	25.04	
PERSPECTIVE	130.76	1	130.76	5.22
GXP	0.04	1	0.04	0.00
OXP	51.22	1	51.22	2.05
GXOXP	33.41	1	33.41	1.33

F's of 6.90 (D.F. of 1,104) were required for significance at the 0.01 level

TABLE 14

ANOVA FOR EXTERNAL CONTROL ROUND ROBIN SUBJECTIVE OUTCOME

Between-Subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN+RESIDUAL	7087.47	247	28.69	
GENDER	5.58	1	5.58	0.19
OUTCOME	0.07	1	0.07	0.00
PERSPECTIVE	21.54	1	21.54	0.75
GXO	59.78	1	59.78	2.08
GXP	1.16	1	1.16	0.04
OXP	98.85	1	98.85	3.45
GXOXP	15.68	1	15.68	0.55

F's of 6.76 (D.F. of 1,247) were required for significance at the 0.01 level

Table 15 summarizes the combined group means that were obtained from the data collected after the round robin matches for the external control dimension for both objective and subjective outcome. Means returning significant effects are highlighted in bold print.

TABLE 15

SUMMARY OF EXTERNAL CONTROL COMBINED MEAN SCORES ROUND ROBIN PLAY

	OUTCOME		**GENDER**		**PERSPECTIVE**	
ANALYSIS	**Winners**	**Losers**	**Males**	**Females**	**Individual**	**Team**
Objective	**12.62**	**14.94**	13.27	14.09	13.11	14.25
n =	82	65	71	76	108	147
Subjective	13.70	13.74	13.56	13.88	13.40	14.04
n =	91	56	71	76	108	147

Note: Means returning significant differences in boldface

The results from the analysis of the external control dimension indicate that losers (*M* = 14.94) see external factors as having a greater degree of control over performance outcome than do winners (*M* = 12.62). This was true only for those attributions made from an objective perspective.

Play-offs

Tables 16 and 17 summarize the analysis of variance for the external control dimension measured between groups after the play-off matches for objective outcome and subjective outcome. No significant effects were obtained.

TABLE 16

ANOVA FOR EXTERNAL CONTROL PLAY-OFFS OBJECTIVE OUTCOME

Between-Subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN	2686.27	67	40.09	
GENDER	0.27	1	0.27	0.00
OUTCOME	4.72	1	4.72	0.12
GXO	42.70	1	42.70	1.07

F's of 7.04 (D.F. of 1,67) were required for significance at the 0.01 level

TABLE 16 Cont.

Within-subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN	1971.41	67	29.42	
PERSPECTIVE	22.68	1	22.68	0.77
GXP	24.00	1	24.00	0.82
OXP	156.65	1	156.65	5.32
GXOXP	1.44	1	1.44	0.05

F's of 7.04 (D.F. of 1,67) were required for significance at the 0.01 level

TABLE 17

ANOVA FOR EXTERNAL CONTROL PLAY-OFFS SUBJECTIVE OUTCOME

Between-Subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN+RESID.	6193.18	174	35.59	
GENDER	3.93	1	3.93	0.11
OUTCOME	26.38	1	26.38	0.74
PERSPECTIVE	16.56	1	16.56	0.47
GXO	0.65	1	0.65	0.02
GXP	18.16	1	18.16	0.51
OXP	2.46	1	2.46	0.07
GXOXP	6.36	1	6.36	0.18

F's of 6.76 (D.F. of 1,174) were required for significance at the 0.01 level

Table 18 illustrates the combined group means for the external control dimension for objective and subjective outcome obtained from data collected following the play-off matches. No significant effects were obtained.

TABLE 18

SUMMARY OF EXTERNAL CONTROL COMBINED MEAN SCORES PLAY-OFFS

	OUTCOME		GENDER		PERSPECTIVE	
	Winners	Losers	Males	Females	Individual	Team
ANALYSIS						
Objective	12.56	11.85	12.34	12.53	12.11	12.79
n =	59	52	48	63	71	111
Subjective	12.92	12.03	12.64	12.30	12.12	12.82
n =	66	45	48	63	71	111

Note: boldface indicates significant difference

The significant outcome effect on the external control dimension that was determined from the objective analysis conducted after the round robin matches did not materialize in any of the analyses performed after the playoff matches.

Personal control

Round Robin

Tables 19 and 20 report the results of the analysis of variance conducted on the raw scores collected for the personal control dimension. A significant effect was obtained for the main effects of outcome and perspective from the objective analysis and for the main effect of perspective from the subjective analysis.

TABLE 19

ANOVA FOR PERSONAL CONTROL ROUND ROBIN OBJECTIVE OUTCOME

Between-Subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN	2847.79	104	27.38	
GENDER	44.91	1	44.91	1.64
OUTCOME	457.21	1	457.21	16.70*
GXO	2.21	1	2.21	0.08

F's of 6.90 (D.F. of 1,104) were required for significance at the 0.01 level
* Significant at the .001 level

Within-subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN	1726.04	104	16.60	
PERSPECTIVE	218.66	1	218.66	13.17*
GXP	0.08	1	0.08	0.00
OXP	29.46	1	29.46	1.78
GXOXP	0.20	1	0.20	0.01

F's of 6.90 (D.F. of 1,104) were required for significance at the 0.01 level
* Significant at the .001 level

TABLE 20

ANOVA FOR PERSONAL CONTROL ROUND ROBIN SUBJECTIVE OUTCOME

Between-Subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN+RESIDUAL	5389.51	247	21.82	
GENDER	4.35	1	4.35	0.20
OUTCOME	68.00	1	68.00	3.12
PERSPECTIVE	284.00	1	284.00	13.02 *
GXO	59.93	1	59.93	2.75
GXP	3.80	1	3.80	0.17
OXP	0.27	1	0.27	0.01
GXOXP	27.95	1	27.95	1.28

F's of 6.76 (D.F. of 1,247) were required for significance at the 0.01 level
* Significant at the .001 level

Table 21 summarizes the combined group means that were obtained from the data collected after the round robin matches for the personal control dimension for both objective and subjective outcome. Means returning significant effects are highlighted in bold print.

TABLE 21

SUMMARY OF PERSONAL CONTROL COMBINED MEAN SCORES ROUND ROBIN PLAY

	OUTCOME		**GENDER**		**PERSPECTIVE**	
	Winners	**Losers**	**Males**	**Females**	**Individual**	**Team**
ANALYSIS						
Objective	**22.41**	**19.63**	21.42	20.81	**20.03**	**22.21**
n =	82	65	71	76	108	147
Subjective	21.53	20.39	21.10	20.39	**19.79**	**22.12**
n =	91	56	71	76	108	147

Note: Means returning significant differences in boldface

As illustrated above, a difference between winners and losers was also indicated on the personal control dimension. This difference was only evident when subjects were using an objective point of view. Winners (*M* = 22.41) rated the cause of performance outcome to be more personally controllable than did losers (*M* = 19.63). Despite these differences, all means for personal control fell in the upper third of the 27 point scale. Both objective and subjective analyses returned significant perspective effects along this dimension. In each instance, attributions made from a team perspective (M = 22.21 (objective) and M = 22.12 (subjective)) were scored higher in terms of personal control than were those attributions formulated from an individual perspective (M = 20.03 (objective) and M = 19.79 (subjective)).

Play-offs

Tables 22 and 23 summarize the analysis of variance for the personal control dimension measured between groups after the play-off matches for objective outcome and subjective outcome. A significant outcome effect was determined from the subjective analysis.

TABLE 22

ANOVA FOR PERSONAL CONTROL PLAY-OFFS
OBJECTIVE OUTCOME

Between-Subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN	1894.12	67	28.27	
GENDER	23.091	1	23.09	0.82
OUTCOME	28.26	1	28.26	1.00
GXO	155.58	1	155.58	5.50

F's of 7.04 (D.F. of 1,67) were required for significance at the 0.01 level

Within-subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN	755.32	67	11.27	
PERSPECTIVE	0.20	1	0.20	0.02
GXP	38.05	1	38.05	3.38
OXP	1.34	1	1.34	0.12
GXOXP	16.72	1	16.72	1.48

F's of 7.04 (D.F. of 1,67) were required for significance at the 0.01 level

TABLE 23

ANOVA FOR PERSONAL CONTROL PLAY-OFFS SUBJECTIVE OUTCOME

Between-Subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN+RESIDUAL	3443.25	174	19.79	
GENDER	5.05	1	5.05	0.26
OUTCOME	180.41	1	180.41	9.12 *
PERSPECTIVE	13.28	1	13.28	0.67
GXO	15.30	1	15.30	0.77
GXP	4.21	1	4.21	0.21
OXP	0.12	1	0.12	0.01
GXOXP	3.74	1	3.74	0.19

F's of 6.76 (D.F. of 1,174) were required for significance at the 0.01 level
* Significant at the .003 level

Table 24 illustrates the combined group means for the personal control dimension for objective and subjective outcome as obtained from data collected following the play-off matches. A significant effect was obtained from the subjective analysis.

TABLE 24

SUMMARY OF PERSONAL CONTROL COMBINED MEAN SCORES PLAY-OFFS

ANALYSIS	Winners	Losers	Males	Females	Individual	Team
Objective	23.26	22.56	22.52	22.63	22.52	22.63
n =	59	52	48	63	71	111
Subjective	**23.51**	**21.19**	22.54	22.15	22.03	22.66
n =	66	45	48	63	71	111

Note: Means returning significant differences in boldface

The results indicate that winners (*M* = 23.51) interpreted their performance as being more personally controllable than did losers (*M* = 21.19) when subjective evaluation of performance was utilized. This is consistent with results obtained from the objective analysis of round robin data.

Discussion

The purpose of this study was to examine attributions in a team environment in an attempt to clarify some of the outstanding issues pertaining to the application of attribution theory (Weiner, 1985) to developmental elite athletes engaged in competitive volleyball. The attributions of 76 female and 71 male athletes competing in an interprovincial elite championship tournament were analyzed on the basis of performance outcome (win/loss), performance perspective (individual/team) and gender. Statistical analyses were calculated on each of the four causal dimensions identified by Weiner's Theory and measured by the Causal Dimension Scale II (McAuley, Duncan, & Russell, 1992).

Self-serving Bias

H_{01}: *Attributions made after a competitive outcome will be of an internal nature for both winners and losers.*

Performance outcome had a significant effect *F* (1,104) = 8.69, $p < .004$ (Table 2) on the degree of internality expressed in attributions made by winners and losers from both the subjective and objective point of view after round robin matches. After play-off matches, a significant difference was found along this dimension only during the subjective anaylsis. This indicates the possible existence of a difference in the way athletes formulate causal ascriptions following performances at different levels of competition. This difference may exist in the manner in which winning and losing is interpreted. During preliminary (round-robin) matches, athletes are able to clearly discern a difference between a win and a loss. During play-offs, as competition intensifies with the equalizing of ability levels, this difference becomes less distinct. As a result, athletes might be more inclined to evaluate performance outcome on the basis of team and individual performance goals as opposed to strictly on the basis of win versus loss. It follows that differences in attributions could therefore emerge from the subjective point of view rather than from the objective point of view.

With this in mind, winners tended to make attribitutions that were more internal in nature than were those of losers. This appears to contradict the results reported by Mark, Mutrie, Brooks and Harris (1984) which indicated no difference between winners and losers along this dimension. Although the present study found a difference to exist, the nature of the difference appears to be one of degree rather than one of direction. The combined means obtained for both winners and losers (in the upper third of the 27 point scale) reflect internal rather than external scores. This is supported by previous research which also found that both winners and losers make internal attributions (Zientek & Breakwell, 1992). The self-serving bias as described as the tendency for winners to make internal attributions and losers external attributions can not be supported by the findings of this study.

H_{o2}: *Winners attribute outcomes to causes that are stable and personally controllable, losers attribute outcomes to causes that are unstable and personally controllable.*

The self-serving bias has also been expressed along the stability dimension. In the present study, athletes consistently reported causal attributions to be stable after successful outcomes and unstable after unsuccessful outcomes regardless of performance perspective. This effect was found to be signficant from both the objective point of view (F (1,104) = 27.88, $p < .001$) and the subjective point of view (F (1,247) = 45.50, $p < .001$ (Table 8)) following round robin matches. Following the play-off matches, a significant effect along the stability dimension was found when subjects were grouped according to subjective outcome (F (1,174) = 10.80, $p < .001$ (Table 16). These results may well be indicative of the emergence of the self-serving bias along this dimension. As athletes involved in competitive volleyball appear to internalize the cause of performance outcome, self-esteem needs must be satisfied in other ways. Athletes participating in this study clearly indicated differences between successful and unsuccessful situations in their attributions pertaining to the stability dimension. This finding is consistent with results reported in previous studies (Grove, Hanrahan, & McInman, 1991; Mark, Mutrie, Brooks, & Harris, 1984; McAuley & Gross, 1983; Tennenbaum & Furst, 1985). By describing the causes of a particular performance outcome as being unstable, athletes can direct effort towards changing those aspects contributing to the loss and thereby increase their expectations of being able to positively effect the outcome of subsequent performances. By making ascriptions relatively low in stability, losers can allow room for improvement and increase expectations of a positive outcome the next time around. Winners, seeing the cause of their success as being more stable, maintain their expectations of success. Winners are encouraged to continue those practices seen as contributing to their success. Losers are encouraged to make those adjustments necessary to improve their performance and increase the likelihood of successful outcomes in future competitions. The indication that winners make stable attributions, losers unstable, comes across clearly in each of the various performance perspectives, and is consistent for both male and female athletes.

Mark, Mutrie, Brooks, and Harris (1984) using the original Causal Dimension Scale (Russell, 1992), found indications of the self-serving bias along the controllability dimension. Problems associated with measurement of this dimension utilizing the CDS led McAuley, Duncan and Russell (1992) to revise the scale. The recently revised version, the CDSII, used in the present study, subdivides the original controllability subscale into a personal control dimension and an external control dimension. Intuitively, the self-serving bias would be reflected in the personal control dimension with winners making attributions indicative of greater degrees of personal control. Losers would score lower on this dimension. As for external control, again a self-serving bias would be indicated if winners scored lower on this dimension; losers on the other hand would score higher.

Winners in this study did return significantly higher ratings of personal control than did losers when data was interpreted from an outcome perspective ($F(1,104) = 16.70$, $p < .001$ (Table 10)) after round robin competition and from a subjective perspective ($F(1,174) = 9.12$, $p < .003$ (Table 18)) after play-off matches. Despite these differences, the combined averages from both trials indicate that both winners ($M = 22.68$) and losers ($M = 20.94$) make internal attributions that are well within the realm of personal control. In doing so, both groups clearly assume personal responsibility for their performance. By assuming control over such factors as skill, effort, and mental preparation, winners and losers can enhance their expectations of future success. Contrary to what would be predicted by the self-serving bias, the results of the present study indicate that it is unlikely that losers are motivated to use the personal control dimension soley for the protection of their self-esteem.

A difference was found between the attributional patterns of winners and losers as pertaining to the external control dimension. This difference, found after round robin matches and significant ($F(1,104) = 9.21$, $p < .003$ (Table 12) only from the objective point of view, indicates that external factors were judged to be more influencial in their impact on the actual outcome of competition than they were in their impact on the quality of either individual or team performance. Earlier indications of the self-serving bias along the controllability dimension reported by Mark, Mutire, Brooks, and Harris (1984) may well have been due to external control factors. The results from the round robin matches indicate that losers ($M = 14.94$) attributed performance outcome to external factors whereas winners ($M = 12.62$) were more inclined to select internal factors. This supports the contention that the self-serving bias may be manifested along the external control dimension.

Differences in attributional patterns were detected along the personal control and stability dimensions between ascriptions collected after round robin matches and those collected after play-off matches. Following round robin matches, differences were found between winners and losers along both dimensions from both objective and subjective viewpoints. Following play-off matches differences indicative of a self-serving bias materialized only from ascriptions made from a subjective perspective. Apparently, as athletes emerge from preliminary matches and enter the final stages of tournament competition, the differences between winning and losing become less distinct. As indicated in the present study, athletes seem to interpret their attributions more critically when judged on the basis of performance success rather than on the basis of performance outcome. Qualification for play-offs may acknowledge a commonality in team and personal ability that may no longer be differentiated soley on the basis of win versus loss. If this were true, it would become easier for members of losing teams to evaluate their performance as successful despite a losing performance. However, the percentage of athletes in this category remained fairly constant. During the round robin competition 28 (550%) of the athletes from losing teams rated their performance as being successful after unsuccessful outcomes. During play-off matches, this number remained fairly constant with 20 (87%) of the athletes from losing teams rating their performance as successful. Obviously, a number of extra factors are introduced through inherent differences that exist between the nature of preliminary and play-off competition. The impact of these factors makes the comparison of causal ascriptions between performance levels difficult. From the present study, differences between winners and losers are clearly discernable from analysis of preliminary competition.

Individual vs. Team Attributions

H_{o3}: *Attributions made from an individual performance perspective will not differ from those made from a team performance perspective.*

The main effect of performance perspective was found to be significant after round robin matches from both objective and subjective viewpoints for the locus of causality dimension $F(1,104) = 18.26$, $p < .001$ (Table 2), $F(1,247) = 18.67$, $p < .001$ (Table 3) and the personal control dimension $F(1,104) = 13.17$, $p < .001$ (Table 10), $F(1,247) = 13.02$, $p < .001$ (Table 11). After play-off matches this difference was significant only for the locus of causality as derived from the subjective analysis $F(1,174) = 10.58$, $p < .001$ (Table 6).

Athletes tended towards attributions that were more internal in nature when formulated from a team perspective ($M = 21.13$) than when formulated from an individual perspective ($M = 19.01$)[2]. This would indicate a willingness on the part of the athletes involved in the study to subjugate their individual performance to that of their team. A high degree of team cohesion could be a contributing factor in this result. With several of the provincial teams training in team camp envrionments, individual athletes are more likely to develop the bonds with teammates required to allow them to place team goals ahead of individual goals. Team environments without this degree of control may well produce different results. Intuitively, it is easier to project higher levels of internality from an individual perspective than from the team perspsective. The generalizability of this effect needs to be evaluated across differing competitive situations as well as across different sports.

Scores for personal control were significantly higher when attributions were made from a team perspective ($M = 22.21$ [Objective], $M = 22.12$ [Subjective]) than when they were made from an individual perspective ($M = 20.03$ [Objective], $M = 19.79$ [Subjective]). Athletes in the present study apparently consider the team as a unit to be more capable of controlling factors contributing to performance outcome than they are themselves as individuals. Intuitively this can be expected in that control over competitive outcome in a team sport is more easily attributed to the team than it is to

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2. Combined means reflecting both round robin and play-off data

influence on this result in that it is very difficult in volleyball for a single athlete to dominate and control the match. Each play requires the coordination of a team effort. It is quite likely that this difference in performance may be indicative of the specific nature of the sport studied rather than of a general pattern existing across team sport.

Gender Differences

H_{04}: *The attributional patterns of males and females will be similar.*

As was expected no significant gender differences were found in the analysis of the data obtained through the present study. However there was an indication that females participating in the study were more willing to evaluate subjective performance as being successful in losing situations than were males[3]. Ego involvement has been identified as an important factor in comparing attributions between males and females (Cronxton and Klonsky, 1982). Data collected from the questionnaires distributed to the athletes indicate that the level of ego involvement was similar between the two genders[4]. With opportunities for involvement in elite sport existing equally for males and females and with the competitive environment being similar for athletes of either gender, it is not surprising that attributional patterns of males and females are similar.

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3. A combined average of 20% of the males and 33% of the females involved in loses evaluated performances a being successful despite the loss.

4. For the round robin matches, both males and females indicated an average importance of 7.3. For the play-offs, males indicated an average importance of 8.4, females an average of 8.1.

General Discussion

Some evidence has been presented supporting the reformulation of the self-serving bias along the stability and external control dimensions. There has also been evidence presented indicating the performance perspective taken by athletes in formulating their causal ascriptions as to the personal control and locus dimensions is an important determinant of the type of attributions made. Athletes do appear to describe the causes of performance outcome differently from an individual perspective than from a team perspective. The main effect of gender did not prove to be significant in the formulation of causal ascriptions.

Although significant differences were found between winners and losers on all four causal dimensions, these differences need not indicate that winners and losers necessarily explain performance outcome differently. For both locus of causality and personal control dimensions, winners and losers differed significantly only in the manner of degree not in the manner of the direction of their responses to the CDSII. Both winners and losers made attributions that where indicative of internal causes that were personally controllable. However, on the external control and stability dimensions, the significant differences obtained indicate a difference in the perception of the causes of performance outcome. Losers gave more credence to external control, rating it towards the higher end of the scale, whereas winners rated external control towards the lower end of the scale. The significant difference obtained on the stability dimension also indicates a difference in the way winners and losers perceive performance outcome. Attributions made by winners indicated that they perceived their performance as having a more stable cause. As can be expected, due to a narrowing of the competitive differences between teams that occurs during play-offs, scores returned by winners on the stability dimension were lower after play-off matches (M = 13.72 [Objective], M = 13.90 [Subjective]) than they were after round robin matches (M = 14.97

[Objective], *M* = 14.48 [Subjective]).

Contrary to expectations, attributions made from an individual perspective differed significantly from those made from a team perspective on the locus dimension and on the personal control dimension. Scores on the locus dimension were generally higher from the team perspective (*M*= 20.74) than they were from the individual perspective (*M*= 18.48). This indicates that athletes acknowledged their teams as being more responsible for performance outcome than they were themselves as individuals. The personal control dimension also returned higher scores from the team perspective (*M*= 22.21) than from the individual perspective (*M*= 20.03). This indicates that athletes in the study saw the team as possessing more control over performance outcome than they were able to exert as individuals on those teams.

The results obtained from the analysis of data from the play-off matches did not return any significant differences for any of the main effects when the data was analyzed on the basis of objective outcome. This did not hold true for results based on analysis of the data grouped according to subjective outcome. Results employing a subjective point of view were consistent with those obtained from the round robin matches. During the play-offs, the distinction between the attributions of winners and those of losers appears to lessen. This may indicate that perceptions based upon subjective performance outcome may become more dominant as competition progresses to subsequent levels. The resultant blurring of the win versus loss distinction utilized to initially classify participant responses reduced the degree of difference found to exist between the two groups.

The indication that females are more likely to subjectively evaluate a losing performance as being successful despite the loss was unexpected and warrants further examination. Anecdotal evidence collected from players and coaches following the completion of the questionnaires indicated a possible area of confusion relating to the differentiation between objective performance outcome, team performance outcome and individual performance outcome. Additional comments from coaches and athletes relative to questions concerning the interpretation of items from the CDSII indicated that some of the athletes may have experienced difficulty responding accurately due to the vague nature of the wording of the items themselves.

To answer the concerns expressed during the administration of the CDSII at the Western Canadian Midget Elite Volleyball Championships, it was determined that a second study be conducted. A second study would allow an opportunity to adjust the wording of the CDSII and thereby clarify those issues raised by the athletes involved in the the first study. As well, the distinction between objective outcome and performance outcome which proved difficult for the participants in this study could be rectified in a follow-up study which would allow an opportunity to clarify the intent of each form of the questionnaire. A second study would also provide an opportunity to determine if the findings from the present study would replicate with different athletes of the same age group participating in a similar sporting environment.

STUDY 2

Design

A two gender by two groups (winners, losers) by performance perspective (outcome/individual, team), 2 X 2 X 3 factorial design was used in this study. Because of the problems associated with the administration of the questionnaire during the play-offs and the complications encountered in comparing round robin data to play-off data experienced in Study 1, this study was limited to responses gathered from athletes after their first round robin matches. To further clarify the distinction between match outcome, and team and individual performance, athletes were asked to classify their attributions specifially in relation to match outcome, team performance, and individual performance and the CDSII was adjusted accordingly (Appendices C-1,C-2, C-3). All subjects were requested to complete all three aspects of the questionnaire. Because the questionnaire was only administered once, demographic data collected was reduced to age, gender, amount of court time, and match significance (Appendix C-4). All other procedures were identical to those employed in Study 1.

Subjects

Athletes participating in the 1993 high school 4A Provincial Volleyball Championships held in Edmonton, Alberta served as subjects for the study. The tournament involved male and female athletes registered in Alberta high schools (15-18 years old) whose teams had previously qualified for the tournament. Competition took the form of a two pool round robin tournament for each of the male and female divisions. The top three teams from each pool of four qualified for the play-offs. Only one of the female teams opted out of the study prior to the commencement of the tournament. The coach explained that time constraints between matches would make it difficult for his/her team to both complete the questionnaire and properly prepare for the next match. All of the male teams participated in the study however one set of completed questionnaires was inadvertently retained by a coach and subsequently lost before it could be returned to the principal investigator. The total potential subjects competing in the tournament were 87 females and 87 males. Of these 66 (78%) of the females and 78 (90%) of the males volunteered for the study.

Results

As with Study 1, each athlete was asked to indicate the importance of the match. Because responses were being requested from both an individual and from a team perspective, each athlete was asked to report the level of importance he/she felt that the match had first of all for themselves and then for their team. Athletes of each gender felt that the matches were important. Females ($M = 8.0$) seemed to place more importance on their individual performance than did males ($M = 7.3$). Responses indicative of match importance from a team perspective were very similar for both males ($M = 7.8$) and females ($M = 7.7$).

A univariate analysis of variance (ANOVA) with repeated measures was used to analyze the data obtained for each of the four causal dimensions as grouped according to objective outcome (win/loss). The design was a 2 X 2 X 3 factorial, with gender (male vs. female), match outcome (win vs. loss), and performance perspective (outcome vs. team vs. individual) as the independent variables and the four subscales of the CDSII; locus of causality, stability, personal control, and external control, as the dependent variables. As was done in the first study, the responses to the questionnaire from each performance perspective were treated as repeated measures for the data grouped according to win versus loss based on objective outcome. When the grouping was changed to successful versus unsuccessful on the basis of each athlete's subjective evaluation of their own and their team's performance, repeated measures were no longer used. Only those athletes indicating an average or above average amount of court time were included in the individual perspective analyses and as such became the delimiting factor in the number of subjects included. The raw scores of all subjects involved in the study are presented in Appendix D.

The tables presented illustrate the differences in means found to exist for each of the four causal dimensions based on comparisons determined by the various groupings of winners/losers, males/females, and individual perspective/team perspective. The midpoint (15) of the 3 to 27 range used by the CDSII is taken to represent a shift between the extremes of each dimension. The significance of these differences is also reported in the tables that follow. Unless otherwise stated, 0.01 has been used as the level of significance in each of the analyses.

Locus of causality

Tables 25 and 26 summarize the analysis of variance for the locus of causality dimension measured between groups for objective and subjective outcome. Significant F's were obtained for outcome, perspective, and gender.

TABLE 25

ANOVA FOR LOCUS OF CAUSALITY OBJECTIVE OUTCOME

Between-Subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN	1185.44	87	13.63	
GENDER	141.97	1	141.97	10.42 **
OUTCOME	250.20	1	250.20	18.36 *
GXO	1.27	1	1.27	0.09

F's of 6.96 (D.F. of 1,87) were required for significance at the 0.01 level
* Significant at the .001 level
** Significant at the .002 level

TABLE 25 Cont.

Within-subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN	1343.56	174	7.72	
PERSPECTIVE	92.38	2	46.19	5.98*
GXP	19.51	2	9.76	1.26
OXP	16.64	2	8.32	1.08
GXOXP	5.94	2	2.97	0.38

F's of 4.75 (D.F. of 2,174) were required for significance at the 0.01 level
* Significant at the .001 level

TABLE 26

ANOVA FOR LOCUS OF CAUSALITY SUBJECTIVE OUTCOME

Between-Subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN+RESID.	2278.50	226	10.08	
GENDER	75.57	1	75.57	7.50*
OUTCOME	61.24	1	61.24	6.07
PERSPECTIVE	44.78	1	44.78	4.44
GXO	41.55	1	41.55	4.12
GXP	4.94	1	4.94	0.49
OXP	9.75	1	9.75	0.97
GXOXP	4.68	1	4.68	0.46

F's of 6.76 (D.F. of 1,226) were required for significance at the 0.01 level
* Significant at the .01 level

Table 27 summarizes the combined group means obtained from the data collected after the round robin matches for the locus of causality dimension from both the objective and subjective points of view. Significant effects were found in each analysis.

TABLE 27

SUMMARY OF LOCUS OF CAUSALITY COMBINED MEAN SCORES

	OUTCOME		GENDER		PERSPECTIVE	
	Winners	Losers	Males	Females	Individual	Team
ANALYSIS						
Objective	**23.58**	**21.52**	**21.92**	**23.25**	**23.32**	**22.37**
n =	77	67	78	66	91	144
Subjective	23.33	22.07	**22.00**	**23.40**	23.24	22.34
n =	95	49	78	66	91	144

Note: Means returning significant differences in boldface

The results indicate that winners (*M* = 23.58) and losers (*M* = 21.52) differ on their attributions pertaining to the locus of causality. This difference was found only when measurements were analyzed from an objective point of view. Winners (*M* = 23.58 [Objective], *M* = 23.33 [Subjective]) and losers (*M* = 21.52 [Objective], *M* = 22.07 [Subjective]) each attributed causes of performance outcome to be largely internal in nature. The results of the subjective analysis also indicate that athletes were more internal in their attributions from an individual perspective (*M* = 23.32) than they were in their attributions from a team perspective (*M* = 22.37). Gender differences were also detected. Females (*M* = 23.25 [Objective] and *M* = 23.40 [Subjective]) were more internal in their attributions than were their male counterparts (*M* = 21.92 [Objective] and *M* = 22.00 [Subjective]).

Stability

Tables 28 and 29 summarize the analysis of variance for the stability dimension measured between groups for objective and subjective outcome. Significant F's were obtained for outcome and perspective from the objective analysis and for outcome from the subjective analysis.

TABLE 28

ANOVA FOR STABILITY - OBJECTIVE OUTCOME

Between-Subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN	4476.57	87	51.45	
GENDER	140.04	1	140.04	2.72
OUTCOME	2859.12	1	2859.12	55.57*
GXO	1.39	1	1.39	0.03

F's of 6.96 (D.F. of 1,87) were required for significance at the 0.01 level
* Significant at the .001 level

Within-subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN	2068.54	174	11.89	
PERSPECTIVE	396.93	2	198.46	16.69*
GXP	37.32	2	18.66	1.57
OXP	92.51	2	46.25	3.89
GXOXP	3.41	2	1.71	0.14

F's of 4.75 (D.F. of 2,174) were required for significance at the 0.01 level
* Significant at the .001 level

TABLE 29

ANOVA FOR STABILITY - SUBJECTIVE OUTCOME

Between-Subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN+RESID.	6361.46	226	28.15	
GENDER	22.61	1	22.61	0.80
OUTCOME	1924.21	1	1924.21	68.36*
PERSPECTIVE	121.40	1	121.40	4.31
GXO	15.50	1	15.50	0.55
GXP	49.05	1	49.05	1.74
OXP	4.46	1	4.46	0.16
GXOXP	0.52	1	0.52	0.02

F's of 6.76 (D.F. of 1,226) were required for significance at the 0.01 level
* Significant at the .001 level

Table 30 summarizes the combined group means obtained from the data collected after the round robin matches for the stability dimension from both the objective and subjective points of view.

TABLE 30

SUMMARY OF STABILITY COMBINED MEAN SCORES

	OUTCOME		GENDER		PERSPECTIVE	
	Winners	**Losers**	**Males**	**Females**	**Individual**	**Team**
ANALYSIS						
Objective	**18.18**	**11.13**	13.85	15.82	**16.26**	**14.02**
n =	77	67	78	66	91	144
Subjective	**17.25**	**10.19**	13.34	14.11	14.61	12.84
n =	95	49	78	66	91	144

Note: Means returning significant differences in boldface

Winners differed from losers in the pattern of attributions pertaining to the stability dimension. This difference proved to be consistent regardless of whether the data was analyzed from an objective or subjective point of view. In each instance, winners (*M* = 18.18 [Objective], *M* = 17.25 [Subjective]) attributed the outcome of their matches to more stable causes than did losers (*M* = 11.13 [Objective], *M* = 10.19 [Subjective]). Perspective differences were also returned from the objective analysis. Athletes rated the causes of their personal performance to be more stable (*M* = 16.26) than the causes of their team's performance outcome (*M* = 14.02).

External control

Tables 31 and 32 summarize the analysis of variance for the locus of causality dimension measured between groups for objective and subjective outcome. No significant effects were obtained.

TABLE 31

ANOVA FOR EXTERNAL CONTROL - OBJECTIVE OUTCOME

Between-Subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN	5234.14	87	60.16	
GENDER	41.78	1	41.78	0.69
OUTCOME	62.94	1	62.94	1.05
GXO	24.81	1	24.81	0.41

F's of 6.96 (D.F. of 1,87) were required for significance at the 0.01 level

Within-subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN	2998.69	174	17.23	
PERSPECTIVE	9.92	2	4.96	0.29
GXP	1.18	2	0.59	0.03
OXP	98.52	2	49.26	2.86
GXOXP	142.47	2	71.23	4.13

F's of 4.75 (D.F. of 2,174) were required for significance at the 0.01 level

TABLE 32

ANOVA FOR EXTERNAL CONTROL - SUBJECTIVE OUTCOME

Between-Subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN+RESID.	7843.42	226	34.71	
GENDER	119.17	1	119.17	3.43
OUTCOME	152.49	1	152.49	4.39
PERSPECTIVE	2.50	1	2.50	0.07
GXO	9.94	1	9.94	0.29
GXP	4.35	1	4.35	0.13
OXP	6.46	1	6.46	0.19
GXOXP	3.14	1	3.14	0.09

F's of 6.76 (D.F. of 1,226) were required for significance at the 0.01 level

Table 33 summarizes the combined group means obtained from the data collected after the round robin matches for the external control dimension from both the objective and subjective points of view.

TABLE 33

SUMMARY OF EXTERNAL CONTROL COMBINED MEAN SCORES

	OUTCOME		GENDER		PERSPECTIVE	
	Winners	**Losers**	**Males**	**Females**	**Individual**	**Team**
ANALYSIS						
Objective	11.22	10.14	11.15	10.20	10.84	10.58
n =	77	67	78	66	91	144
Subjective	11.19	9.20	11.08	9.32	10.33	10.07
n =	95	49	78	66	91	144

Note: Means returning significant differences in boldface

Personal control

Tables 34 and 35 summarize the analysis of variance for the locus of causality dimension measured between groups for objective and subjective outcome. No significant results were obtained for any of the main effects, however a significant interaction effect was returned for gender by outcome by perspective during the subjective analysis.

TABLE 34

ANOVA FOR PERSONAL CONTROL - OBJECTIVE OUTCOME

Between-Subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN	1912.01	87	21.98	
GENDER	45.56	1	45.56	2.07
OUTCOME	112.29	1	112.29	5.11
GXO	9.24	1	9.24	0.42

F's of 6.96 (D.F. of 1,87) were required for significance at the 0.01 level

TABLE 34 Cont.

Within-subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN	1532.52	174	8.81	
PERSPECTIVE	61.55	2	30.77	3.49
GXP	22.40	2	11.20	1.27
OXP	6.14	2	3.07	0.35
GXOXP	71.31	2	35.65	4.05

F's of 4.75 (D.F. of 2,174) were required for significance at the 0.01 level

TABLE 35

ANOVA FOR PERSONAL CONTROL - SUBJECTIVE OUTCOME

Between-Subjects effects

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F Ratio
WITHIN+RESID.	3138.15	226	13.89	
GENDER	57.57	1	57.57	4.15
OUTCOME	72.54	1	72.54	5.22
PERSPECTIVE	37.08	1	37.08	2.67
GXO	30.85	1	30.85	2.22
GXP	31.26	1	31.26	2.25
OXP	2.99	1	2.99	0.22
GXOXP	211.59	1	211.59	15.24*

F's of 6.76 (D.F. of 1,226) were required for significance at the 0.01 level

* Significant at the .001 level

TABLE 36

SUMMARY OF PERSONAL CONTROL COMBINED MEAN SCORES

	OUTCOME		GENDER		PERSPECTIVE	
	Winners	Losers	Males	Females	Individual	Team
ANALYSIS						
Objective	23.44	22.03	22.28	23.30	23.24	22.57
n =	77	67	78	66	91	144
Subjective	23.35	21.98	22.05	23.27	23.15	22.17
n =	95	49	78	66	91	144

Note: Means returning significant differences in boldface

The results from study 2 did not return any significant differences for any of the main effects as examined relative to the controllability dimensions (personal control/external control). However, a significant interaction effect (*F* (1,226) = 15.24, $p < .001$ (Table 35) was determined for the personal control dimension. This effect was returned only from the subjective point of view. From a team perspective, females indicated a greater degree of personal control under the success condition than did males. Unsuccessful females considered their performance to be under less personal control than did their successful counterparts. On the other hand, from an individual perspective, female athletes having lost their matches continued to make ascriptions indicating a higher degree of personal control than did the males. Also from this perspective, male athletes in the success group rated their attributions higher on the personal control scale than did male athletes in the unsuccessful group.

Discussion

The purpose of this study was to clarify the ambiguities found during the administration of the CDSII in study 1 and to test the replicability of the results obtained through the initial study. To eliminate the complications found to exist in the initial study in the comparison of attributions obtained after round robin matches to those obtained after playoff matches, study 2 only collected attributions following the initial round robin matches. The attributions of 66 female and 78 male athletes competing in a provincial high school volleyball tournament were analyzed on the basis of performance outcome (win/loss), performance perspective (individual/team) and gender. Statistical analyses were calculated on each of the four causal dimensions as measured by the Causal Dimension Scale II (McAuley, Duncan, & Russell, 1992).

Self-serving Bias

H_{01}: *Attributions made after a competitive outcome will be of an internal nature for both winners and losers.*

The self-serving bias has been described as including both motivational (self-esteem protection) and cognitive factors (expectations relative to outcome) (Mark, Mutrie, Brooks, & Harris (1984). To protect self-esteem, losers are motivated to attribute causes of performance outcome to external factors. Although this self-protective mechanism may be quite strong, several authors have suggested that situational norms may well exist within the sporting community that encourage the acceptance of personal responsibility for performance outcome and actually discourage the externalization of failure (Mark et al., 1984; Scanlan & Passer, 1980). To protect self-esteem and still present themselves acceptably, athletes experiencing a losing performance may find an outlet along dimensions other than the locus of causality (Mark et al., 1984). In their 1984 study, these authors found evidence that this release occured along the stability and controllability dimensions.

The results from the present study indicate that winners do differ from losers in their attributions following competition. A significant difference, $F\ (1,87) = 18.36$, $p < .001$ (Table 23), was determined from the objective point of view for the locus dimension. That this effect did not materialize during the subjective analysis may have been due to the the fact that 59% of the athletes from losing teams (27/46) rated their performance as successful despite a loss. The addition of their scores to the analysis of successful performances may have served to narrow the differences found to exist previously in the objective analysis. As was found during the first study, the difference between winners and losers relative to the locus of causality dimension appears to be one of degree as opposed to direction. The combined means of both groups ($M = 23.45$ [Winners] and $M = 21.80$ [Losers]) fall in the upper third of the 27 point scale and are indicative of a tendency for both winners and losers to internalize performance outcome.

It is therefore unlikely that athletes participating in the studies were motivated to formulate ascriptions along the locus dimension in order to either protect or support self-esteem. As highlighted above, the results obtained fail to support the existence of a self-serving bias as manifested along the locus of causality.

H_{o2}: *Winners attribute outcomes to causes that are stable and personally controllable, losers attribute outcomes to causes that are unstable and personally controllable.*

The possibility of the manifestation of the self-serving bias along the stability dimension was once again supported by the results from study 2. A significant effect for outcome was determined for this dimension from both the objective analysis (F (1,87) = 55.57, $p < .001$ (Table 26)) and the subjective analysis (F (1,226) = 68.36, $p < .001$ (Table 27)). The indication that winners make stable attributions (M = 23.40) and losers make unstable attributions (M = 10.66) is once again supported by this study.

The controllability dimensions (personal/external control) did not indicate any significant differences between winners and losers. The failure of these dimensions to return significant effects for outcome goes against the results returned from the initial study. The conservative ANOVA methodology used coupled with a stringent alpha level set at $p < 0.01$ may well have been a factor in this discrepancy between studies. The main outcome effect for personal control[5] (F (1,87) = 5.11 $p < 0.03$ [objective analysis] and F (1,226) = 5.22 $p < 0.02$ [subjective analysis]) may indicate that similar differences between winners and losers did in fact exist in both studies. Although both studies point to a difference between winners and losers along the controllability dimension, this difference does not negate the hypothesis as posited. Both winners and losers clearly indicated a preference for causal ascriptions reflecting a high level of personal control.

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[5] Tables 34 and 35

This result was not unexpected in that athletes are generally encouraged to assume personal control of their performances regardless of the outcome of competition. In this study, as was the case in the first study, winners (*M* = 23.40) and losers (*M* = 21.98) rated their attributions well into the upper third of the 27 point scale. Both groups apparently consider the causes of performance outcome to be well within the realm of personal control. The result for the external control dimension was unexpected. Contrary to study 1, which indicated that a self-serving bias may well exist along the external control dimension, the evidence from study 2 indicates that winners and losers do not attribute the causes of performance outcome differently along this dimension. Both winners (*M* = 11.16) and losers (*M* = 9.67) rated their attributions relatively low as to external control. Although this difference was not significant, it is interesting to note that winners apparently perceived controllable external influences to have had a slightly greater impact on performance outcome than did losers. A self-serving bias as was evident in the initial study, is represented by losers attributing a greater degree of control to external sources than do winners, not the other way around. This reversed pattern is consistent with the results obtained after the play-offs in study 1. No specific information was available from the questionnaires that would explain this occurrence.

Individual vs. Team Attributions

H_{o3}: *Attributions made from an individual performance perspective will not differ from those made from a team performance perspective.*

As was the case in study 1, athletes in study 2 indicated that they perceived the causes of their performances differently along the locus of causality dimension from a team perspective than they did from an individual perspective. However, unlike study 1, in the second study attributions from an individual perspective (*M* = 23.32) were more internal in nature than those from a team perspective (*M* = 22.37)[6]. Intuitively, this makes sense in that as the perspective changes from outcome to team to individual, the athlete him/herself increasingly becomes the focus of the performance result being attributed. It therefore becomes more probable that internal causes of performance outcome are identified as the athlete is asked to focus his/her attention more closely on his/her own performance.

The stability dimension also returned a significant difference as to the main effect of performance perspective. There appears to be very little difference in the manner through which athletes viewed the stability of performance from either a strict outcome perspective (*M* = 13.98) or from a team performance perspective (*M* = 14.02). In both instances, athletes rated performance outcome to be the result of unstable causes. However, athletes did clearly indicate that their personal performances were significantly more stable (*M* = 16.26). As with the locus dimension discussed previously, this also makes sense intuitively in that the factors impinging on the stability of performance decrease in number as the focus shifts from overall outcome to team performance and finally to individual performance. Contrary to what was hypothesized, athletes praticipating in study 2 classified causal ascriptions differently depending upon which performance perspective was used. Indications are that comparisons across groups (eg. winners/losers; males/females) requires a common perspective base. This calls in to question, the generalizability of previous research beyond the specific sport situation that was studied.

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[6] Results from the objective analysis

Gender Differences

H_{04}: *The attribtuional patterns of males and females will be similar.*

Unlike study 1, the second study did return a significant gender effect. From the outcome oriented perspective, female athletes were more internal in their attributions after a win than were male athletes in the same situation. This finding contradicts results returned from a recent study of softball players (White, 1993) and might indicate sport specificity as a factor to be considered in attributional research. Despite the difference between males and females indicated above, the means returned from both groups represent high scores along the locus dimension. Apparently, both males and females look to internal causes when explaining performance outcome. A significant number of athletes involved in losses were able to evaluate their performance as successful despite that loss[7]. Taking this into consideration, it appears that athletes of either gender are able to evaluate performance outcome on factors beyond a simple win/loss statistic.

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[7] A combined average of 51% of the males and 70% of the females involved in loses evaluated performances as being successful despite the loss

General Discussion

It is apparent from both studies that winners and losers both ascribe performance outcome to internal factors. This finding is consistent with previous work (Zientek & Breakwell, 1992). Winners and losers were also very similar in their classification of causal ascriptions as to personal control. Both groups scored high on the personal control dimension (means ranged between 19.63 and 23.51). Due to the high correlation between the dimension of causality and personal control, this result is not unexpected. If situational norms, as described by Scanlan and Passer (1980b), do exist to shape attributional responses in favor of internality, then these same forces can be expected to influence the formulation of causal ascriptions in favor of personal control. It follows that if norms exist which encourage the acceptance of personal responsibility for performance outcome, then these same forces must also work to suppress external control ascriptions. The present study is generally supportive of this analysis. Only during study 1, after the objective analysis of the round robin data, did losers ascribe more external control causes than did winners. The remaining analyses pertaining to this dimension failed to determine any differences in the attributional patterns of winners and losers and in all instances, both winners and losers rated external factors low as to causes of performance outcome. With both groups apparently motivated to ascribe personal control factors and yet still able to acknowledge the significance of some external control factors (eg. opponents effort/luck), it is unlikely that controllability scores can be expected to consistently reflect a self-serving bias.

However, winners and losers did differ consistently across both studies in their attributions classified as to the stability dimension. Only the data collected after the play-off matches in study 1, analyzed from an objective outcome perspective, did not return a significant effect. In all cases winners scored higher than losers. This clearly supports the contention that a self-serving bias may exist along the stability dimension.

Unlike the dimensions of causality and controllability, there are no aspersions existing to limit the use of this dimension to protect and support self-esteem. In fact, describing a successful outcome as being stable encourages continuation of those behaviors deemed to be contributory to that result. Interpreting unsuccessful outcome as being unstable provides for the opposite response. Coaches can encourage positive change by emphasizing the transient nature of a negative result. This can be done by either directing their players' attention towards continued effort in improving skill and performance or towards improved effort directed at those objectives.

Results from both studies indicate that performance perspective can be a factor in attributional patterns. In the first study, higher ratings of internality and personal control attributions were made when athletes used a team perspective in formulating their ascriptions. In the second study, higher ratings of internality were obtained from the individual perspective. From that same perspective, higher ratings were also returned in terms of stability. This discrepancy could be the result of differences in team cohesion. Conceivably athletes on teams with lower cohesion would be more likely to formulate self-serving ascriptions, their counterparts on highly cohesive teams, more team-serving. A measure of cohesion among the various teams involved in each study might have contributed valuable information in this regard.

Although study 2 did indicate females to be more internal in their ascriptions than were males, both genders consistently reported high scores on the locus scale. It is likely that the attributional patterns of male and female developmental athletes involved in the sport of volleyball are similar. The fact that females appeared to be more adept at judging their performances as successful even in losing situations might indicate a greater willingness on their part to evaluate results on the basis of performance goals as opposed to outcome goals. This might well be an area of interest for further research.

That the CDSII can be utilized to study attributions in a field environment involving team sport is evident in the consistency of the results between studies and with previous research. Athletes in developmental sport are clearly able to use the instrument to classify their ascriptions. As such, the CDSII can provide a valuable tool for continued exploration of the nature of attributions formulated in a sporting environment.

Attributional research can have direct application to individual and team sport. Causal ascriptions arising out of post-competition debriefings provide the basis for the self-talk that each athlete utilizes in an attempt to make sense out of his/her personal contribution to a performance outcome. It is commonly acknowledged that positive self-talk enhances performance. The nature (ie. positive/negative) of the self-talk used subsequent to achievement situations, such as those in competitive sport, can be seen to be a direct consequence of the type of causal ascriptions formulated. By studying attributions as they are formulated in a competitive environment in the field, researchers are better prepared to offer understandings that are of real benefit to the practitioner. Further research needs to be conducted to establish attributional patterns as they may exist prior to any exposure to organized sport. Indications are that these patterns may be acquired in the process of socialization as it occurs in the various sports available to developmental athletes. If attributional patterns conducive to enhanced performance may be acquired through experiences associated with organized sport, then similar patterns may well be encouraged in achievement situations as they exist across a variety of different activities (eg. education, performing arts, the work-place).

The present research supports the existence of attributional patterns that vary across performance outcome. Further research examining the link between these patterns and the behavior subsequent to their formulation needs to be conducted.

SUMMARY AND CONCLUSIONS

The following conclusions are made relative to the hypotheses posited based on Weiner's Attribution Theory (1985).

1. Attributions made after a competitive outcome involving developmental athletes participating in the sport of volleyball are of an internal nature for both winners and losers.
2. Among developmental athletes involved in the sport of volleyball, both winners and losers attribute performance outcomes to personally controllable causes. Winners attribute the cause of performance outcome to stable causes, losers attribute the cause of performance outcome to unstable causes.
3. Performance perspective (individual vs. team) influences attributions made by developmental athletes involved in the sport of volleyball.
4. The attributional patterns of male and female developmental athletes involved in the sport of volleyball are similar.

The reformulation of the self-serving bias as proposed by Mark, Mutrie, Brooks and Harris (1984) was supported in part by the findings of both studies. The tendency for athletes to internalize performance outcome was evident throughout the various analyses conducted on the data returned from each of the two studies. This would indicate that self-esteem protection is not attempted along the locus of causality dimension. As anticipated this self-protection mechanism was clearly manifested along the stability dimension as winners and losers (based on both objective and subjective interpretations) differ as to their interpretation of the stability of their respective performances. Winners scored consistently higher on this dimension than did losers across both studies and from each outcome grouping studied. Data supporting the emergence of the bias along the controllability dimensions (personal/external) was equivocal. The self-serving bias as reformulated would suggest that winners differ from losers by classifying causes of performance outcome as being more personally controllabe and less externally controllable than losers. The present study indicates that both winners and losers perceive performance causes to be personally controllable. This result is not totally unexpected in that personal controllability is closely related to internal scores on the locus dimension. With both winners and losers scoring high in internality, it follows that both groupings would also return high scores on the personal control scale. However intuitively, differences are expected to appear along the external control scale. Low scores were consistently returned from both winners and losers in the present study. A single signficant effect was obtained only after the round robin matches in study 1. That this aspect remains inconclusive may point to problems that continue to exist relative to the measurement of attributions along the controllability dimension. It is also possible that developmental athletes may not be able to clearly discern the subtle differences involved in distinguishing between what is personally controllable/uncontrollable and what is externally controllable/uncontrollabe. It is also possible that the terminology used to describe the various endpoints utilized by the CDSII compounds this difficulty.

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APPENDIX A

Appendix A-1

CAUSAL DIMENSION SCALE II
(McAuley, Duncan, & Russell, 1992)

TEAM

1. **Match:** round robin play-off (please circle) 2. **Outcome:** win loss (please circle)

3. What were your team's major performance goals for this specific match? (please list)

4. How well did your team do in relation to the goals listed above?

all goals met				some goals met				goals not met
9	8	7	6	5	4	3	2	1

5. Why was your team successful/unsuccessful in reaching the goals set prior to the match?

Instructions: Think about the reason or reasons you have written above. The items below concern your impressions or opinions of this cause or causes of your team's performance. Circle one number for each of the following questions.

Is the cause(s) something:

1.	That reflects an aspect of your team	9	8	7	6	5	4	3	2	1	reflects an aspect of the situation
2.	Manageable by your team	9	8	7	6	5	4	3	2	1	not manageable by your team
3.	Permanent	9	8	7	6	5	4	3	2	1	temporary
4.	Your team can regulate	9	8	7	6	5	4	3	2	1	your team cannot regulate
5.	Over which others have control	9	8	7	6	5	4	3	2	1	over which others have no control
6.	Within your team	9	8	7	6	5	4	3	2	1	outside of your team
7.	Stable over time	9	8	7	6	5	4	3	2	1	variable over time
8.	Under the power of other people	9	8	7	6	5	4	3	2	1	not under the power of other people
9.	Something about your team	9	8	7	6	5	4	3	2	1	something about others
10.	Over which the team has power	9	8	7	6	5	4	3	2	1	over which the team has no power
11.	Unchangeable	9	8	7	6	5	4	3	2	1	changeable
12.	Other people can regulate	9	8	7	6	5	4	3	2	1	other people cannot regulate

Thank you for completing both sides of this questionnaire

Appendix A-2

CAUSAL DIMENSION SCALE II

INDIVIDUAL

1. **Match:** round robin play-off (please circle) 2. **Outcome:** win loss (please circle)

3. What were your personal performance goals for this specific match? (please list)

4. How well did you do in relation to the goals listed above?

all goals met				some goals met				goals not met
9	8	7	6	5	4	3	2	1

5. Why were you successful/unsuccessful in reaching the goals set prior to the match?

Instructions: Think about the reason or reasons you have written above. The items below concern your impressions or opinions of this cause or causes of your personal performance. Circle one number for each of the following questions.

Is the cause(s) something:

1.	That reflects an aspect of yourself	9	8	7	6	5	4	3	2	1	reflects an aspect of the situation
2.	Manageable by you	9	8	7	6	5	4	3	2	1	not manageable by you
3.	Permanent	9	8	7	6	5	4	3	2	1	temporary
4.	You can regulate	9	8	7	6	5	4	3	2	1	you cannot regulate
5.	Over which others have control	9	8	7	6	5	4	3	2	1	over which others have no control
6.	Inside of you	9	8	7	6	5	4	3	2	1	outside of you
7.	Stable over time	9	8	7	6	5	4	3	2	1	variable over time
8.	Under the power of other people	9	8	7	6	5	4	3	2	1	not under the power of other people
9.	Something about you	9	8	7	6	5	4	3	2	1	something about others
10.	Over which you have power	9	8	7	6	5	4	3	2	1	over which you have no power
11.	Unchangeable	9	8	7	6	5	4	3	2	1	changeable
12.	Other people can regulate	9	8	7	6	5	4	3	2	1	other people cannot regulate

Please turn over and complete the team performance questionnaire

Appendix A-3

Causal Attributions in Elite Volleyball

Directions: Please fill in the information as required below, then turn the page over and begin the questionnaire. **All personal identification shall be removed prior to any data analysis. No attempt will be made to link your answers back to yourself. The questionnaires will remain sealed and secured until data analysis begins after the tournament is finished.** You are to work independently in responding to the questionnaire. Your frank and honest responses will contribute to the significance of the information obtained. Thank you once again for consenting to participate in this research project.

Personal identification:

Name: ______________________________ Birthdate: ___/___/___
last first d m y

Gender: male female (please circle) Team: ____________________

Province: ____________________________ Position: ____________________

Court time:

Estimate the amount of court time you had during this match (please circle the number of the description that best represents the amount of playing time you had in this match):

1. minor (did not get in or had a minimal amount of court time)
2. average (was a starter and was substituted after some court time or was a bench player who was substituted in and received some court time OR was a regular substitute for specialty situations)
3. major (either started and remained in for most or all of the match or came in from the bench early and stayed in for most of the match)

Match significance:

Please circle the number that you think best represents the importance of the match to you personally:

very important				important			not important	
9	8	7	6	5	4	3	2	1

Please circle the number that you think best represents the importance of the match to your team:

very important				important			not important	
9	8	7	6	5	4	3	2	1

Please turn the page and complete both sides of the questionnaire

Appendix A-4

SPSS Syntax File

```
MISSING VALUES ALL (999).
MANOVA LOCIPRS LOCTPRS BY GENDER (1,2) OUTCOME (1,2)
        /WSFACTOR= LOCUS (2)
        /PRINT= SIGNIF (AVERF)
        /METHOD= UNIQUE
        /POWER= APPROXIMATE
        /DESIGN.
MEANS TABLES= LOCIPRS LOCTPRS BY GENDER BY OUTCOME.
```

APPENDIX B

Causal dimensions scale computations — Male (Round Robin) (Winners)

INDIVID Item #	P1	p2	p3	p4	p5	p6	p7	p8	p9	p10	p11	p12	p13	p14	p15	p16	p17	p18	p19	p20	p21	p22	p23	p24	p25	p26	p27	p28	p29	p30	p31	p32	p33	p34	p35	p36	p37	p38	p39	p40
1	8	7	3	8	3		6	3	4	2		6	8		7	6		6	5	7	3	8	8		3	9		8	9	7	7		9		8	7				
2	9	8	9	9	5		7	7	9	9		9	9		8	8		9	9	9	5	9	7		9	9		8	9	9	9		8		7	5				
3	8	6	1	1	1		4	5	1	6		7	7		8	3		9	1	5	3	6	6		7	7		4	1	9	7		7		9	3				
4	8	9	9	9	7		3	6	6	8		6	9		7	7		8	3	7	6	9	7		7	9		8	9	5	6		9		9	6				
5	1	2	1	2	4		5	2	4	5		7	6		5	5		1	2	5	5	2	7		1	4		3	3	2	5		2		3	3				
6	5	9	7	8	3		3	9	6	8		5	9		8	3		9	4	5	6	9	8		9	9		7	5	9	7		6		9	9				
7	7	4	5	4	5		7	5	4	6		6	9		6	3		7	2	5	4	9	5		9	8		4	8	9	7		6		9	3				
8	3	3	3	2	4		2	3	4	5		6	6		5	5		2	2	7	5	3	3		1	4		3	3	4	7		5		2	3				
9	9	8	6	8	6		4	9	5	6		5	8		7	4		8	8	7	7	7	7		8	7		9	9	7	8		8		8	7				
10	8	8	7	9	2		7	6	9	7		7	8		8	7		9	2	6	6	8	8		9	9		8	9	6	8		2		9	5				
11	2	3	1	1	3		9	3	1	1		5	5		4	1		9	7	5	4	2	5		1	1		2	1	9	6		7		5	2				
12	3	4	1	2	3		2	5	3	5		7	6		8	6		2	7	4	5	1	4		1	6		1	4	3	8		2		3	3				
locus causality	22	24	16	24	12	0	13	21	15	16	0	16	25	0	22	13	0	23	17	19	16	24	23	0	20	25	0	24	23	23	22	0	23	0	25	23	0	0	0	0
external control	7	9	5	6	11	0	9	10	11	15	0	20	18	0	18	16	0	5	11	16	15	6	14	0	3	14	0	7	10	9	20	0	9	0	8	9	0	0	0	0
stability	17	13	7	6	9	0	20	13	6	13	0	18	21	0	18	7	0	25	10	15	11	17	16	0	17	16	0	10	10	27	20	0	20	0	23	8	0	0	0	0
personal control	25	25	25	27	14	0	17	19	24	24	0	22	26	0	23	22	0	26	14	22	17	26	22	0	25	27	0	24	27	20	23	0	19	0	25	16	0	0	0	0

Individual averages

Total responses ---> 28

locus of causality 20.32

external control 11.11

stability 14.75

personal control 22.36

TEAM	P1	p2	p3	p4	p5	p6	p7	p8	p9	p10	p11	p12	p13	p14	p15	p16	p17	p18	p19	p20	p21	p22	p23	p24	p25	p26	p27	p28	p29	p30	p31	p32	p33	p34	p35	p36	p37	p38	p39	p40
1	5	8	3	7	3	8	5	4	4	1	6	6	8	7	4	2	7	7	6	7	4	8	9	8	9	9	8	8	9	9	8	7	7	9	5	7	9			
2	9	8	7	8	9	7	7	7	9	9	9	8	7	8	6	8	8	9	7	8	6	8	9	8	9	7	6	9	9	9	8	9	9	9	8	6	9			
3	5	6	1	7	5	5	6	5	2	6	1	8	5	6	6	5	7	8	1	6	7	5	7	2	8	1	7	8	5	9	7	5	6	7	7	5	9			
4	9	7	9	9	7	7	7	8	9	7	9	8	6	8	5	7	7	7	8	7	5	5	9	8	9	9	7	9	9	8	8	9	9	9	6	7	9			
5	2	4	9	7	1	3	3	6	7	8	1	8	5	3	4	5	5	2	9	3	3	3	7	1	9	1	7	8	7	2	6	5	8	7	8	4	2			
6	8	9	9	9	5	9	7	6	7	8	9	7	8	7	7	9	7	8	8	8	4	9	9	8	9	9	9	9	7	8	9	9	5	9	8	7	7			
7	5	6	9	6	2	7	5	5	5	7	9	6	7	7	5	1	5	7	9	6	5	4	6	7	9	7	9	6	7	9	9	7	5	9	7	5	8			
8	3	7	1	9	4	3	3	6	6	8	1	7	6	2	4	6	6	6	3	3	4	3	4	1	1	1	7	2	7	3	7	1	7	4	6	3	3			
9	8	6	6	8	9	7	8	5	7	9	9	8	7	5	7	9	7	7	8	7	5	6	8	8	9	9	3	8	9	8	8	9	9	8	4	6	8			
10	9	9	9	8	9	7	5	8	8	9	9	9	8	7	8	7	5	9	4	9	6	7	9	9	9	9	9	9	9	9	5	9	9	9	7	7	2			
11	1	7	1	7	3	6	9	2	1	1	1	7	5	3	5	2	8	6	1	6	5	1	6	9	1	1	9	6	5	9	8	1	9	1	5	5	9			
12	2	6	9	8	1	2	2	7	6	9	1	8	5	8	4	5	4	7	8	3	6	5	4	1	1	1	6	1	1	3	6	5	1	3	3	4	1			
locus causality	21	23	18	24	17	24	20	15	18	18	24	21	23	19	18	20	21	22	22	22	13	23	26	24	27	27	20	25	25	25	25	25	21	26	17	20	24	0	0	0
external control	7	17	19	24	6	8	8	19	19	25	3	23	16	13	12	16	15	15	20	9	13	11	15	3	11	3	20	11	15	8	19	11	16	14	17	11	6	0	0	0
stability	11	19	11	20	10	18	20	12	8	14	11	21	17	16	16	8	20	21	11	18	17	10	19	18	18	9	25	20	17	27	24	13	20	17	19	15	26	0	0	0
personal control	27	24	25	25	25	21	19	23	26	25	27	25	21	23	19	22	20	25	19	24	17	20	27	25	27	25	22	27	27	26	21	27	27	27	21	20	20	0	0	0

Team averages

Total respones:---> 37

locus of causality 21.70

external control 13.46

stability 16.68

personal control 23.54

APPENDIX B-1 RAW SCORES WESTERNS
Male Round Robin Winners

Causal dimensions scale computations								Male (Round Robin) Losers																																		
																																									Team averages	
INDIVID	P1	p2	p3	p4	p5	p6	p7	p8	p9	p10	p11	p12	p13	p14	p15	p16	p17	p18	p19	p20	p21	p22	p23	p24	p25	p26	p27	p28	p29	p30	p31	p32	p33	p34	p35	p36	p37	p38	3p9	p40	Total responses:-->	28
item #																																									locus of causality	
1	9	7	1		5	5			5	8	5		6	2	6	5	6	5	7		7	6	9	6	7	2	7	7		5	2	7	5	3							17.88	
2	9	7	1		8	6			5	5	5		3	9	5	6	7	3	9		8	7	9	8	8	4	5	5		6	3	6	2	1								
3	9	3	1		2	4			3	5	4		3	2	4	5	6	1	9		1	5	1	2	1	1	2	4		1	2	4	7	1							external control	
4	7	4	9		9	6			7	5	7		5	9	6	5	6	7	7		8	6	6	8	8	7	8	8		8	6	7	6	1							14.32	
5	8	4	9		1	6			3	7	3		4	2	5	6	4	5	5		1	5	1	3	1	9	6	5		9	6	6	8	6							stability	
6	8	3	5		8	6			8	5	9		5	2	7	5	7	9	9		8	8	9	8	9	5	9	8		6	2	8	4	1							10.32	
7	5	3	9		8	4			4	8	5		5	7	7	4	4	6	3		6	6	7	2	2	1	5	2		4	3	9	1	1								
8	4	2	5		1	6			5	5	4		3	1	6	8	4	5	1		8	5	1	2	9	8	2	2		1	9	7	7	7							personal control	
9	8	8	5		5	6			6	5	6		6	8	5	3	6	6	9		7	6	6	8	8	5	5	8		1	4	8	7	2							18.43	
10	5	5	5		9	6			5	6	6		6	9	7	3	8	5	9		8	4	9	8	8	5	5	9		3	3	4	2	6								
11	1	1	1		1	4			2	3	1		6	1	5	4	2	2	8		2	4	1	1	1	1	1	4		1	2	1	3	1								
12	6	1	5		6	6			4	7	7		3	1	4	4	3	4	1		4	6	6	2	6	9	9	6		5	4	8	5	5								
locus	25	18	11	0	18	17	0	0	19	18	20	0	17	12	18	13	19	20	25	0	22	20	24	22	24	12	21	23	0	12	8	23	16	6	0	0	0	0	0	0		
causality																																										
external																																										
control	18	7	19	0	8	18	0	0	12	19	14	0	10	4	15	18	11	14	7	0	13	16	8	7	16	26	17	13	0	15	19	21	20	18	0	0	0	0	0	0		
stability	15	7	11	0	11	12	0	0	9	16	10	0	14	10	16	13	12	9	20	0	9	15	9	5	4	3	8	10	0	6	7	14	11	3	0	0	0	0	0	0		
personal																																										
control	21	16	15	0	26	18	0	0	17	16	18	0	14	27	18	14	21	15	25	0	24	17	24	24	26	16	18	22	0	17	12	17	10	8	0	0	0	0	0	0		
																																									INDIVIDUAL averages	
TEAM	P1	p2	p3	p4	p5	p6	p7	p8	p9	p10	p11	p12	p13	p14	p15	p16	p17	p18	p19	p20	p21	p22	p23	p24	p25	p26	p27	p28	p29	p30	p31	p32	p33	p34	p35	p36	p37	p38	3p9	p40	Total repones:-->	34
1	7	1	1	9	1	5	5	3	2	7	9	4	6	4	7	5	6	5	1	6	6	6	9	8	6	9	9	9	7	5	5	9	5	3							locus of causality	
2	8	9	9	9	7	6	4	8	8	6	9	7	6	8	6	7	7	6	1	9	9	4	8	8	7	9	9	9	9	6	9	7	8	1							19.26	
3	3	1	1	1	4	2	6	2	1	5	1	4	4	3	4	4	6	4	9	1	1	6	1	1	4	1	1	2	5	6	3	4	5	1								
4	8	9	9	9	8	7	3	5	9	6	9	7	6	8	6	6	6	4	1	7	9	5	6	8	9	9	9	9	9	5	9	8	6	1							external control	
5	4	7	5	6	1	6	5	9	6	5	7	5	5	8	5	3	3	5	9	5	9	7	1	7	3	1	5	3	1	4	5	5	6	3							14.24	
6	8	9	5	9	9	7	7	5	5	6	8	7	6	8	6	8	7	9	1	7	9	5	8	9	9	9	7	8	9	6	5	7	7	9							stability	
7	4	7	9	1	9	5	4	9	7	4	2	4	5	6	5	7	7	5	1	2	1	4	8	2	1	9	5	3	4	2	5	6	3	1							10.97	
8	5	5	1	7	1	3	6	1	3	5	2	4	5	8	4	8	3	5	9	2	9	6	1	6	5	1	3	5	1	1	7	8	6	5								
9	8	7	5	6	9	6	3	2	7	5	9	6	7	6	6	5	7	5	1	7	9	8	5	9	9	9	8	8	9	6	8	5	5	9							personal control	
10	8	9	9	9	9	6	6	3	4	6	9	7	6	8	5	5	7	5	1	9	9	5	9	9	7	9	9	9	9	7	9	8	6	9							21.26	
11	1	1	1	1	3	2	4	9	2	5	1	7	4	9	7	3	3	2	9	1	1	4	1	1	1	1	1	2	1	2	9	6	3	1								
12	1	4	1	5	3	4	5	9	7	5	3	5	4	9	6	7	3	4	9	3	9	7	7	5	6	1	5	2	9	1	5	3	4	5								
locus	23	18	11	24	19	18	15	10	14	18	26	17	19	18	19	18	20	19	3	20	24	19	22	26	24	27	24	25	25	17	18	21	17	21	0	0	0	0	0	0		
causality																																										
external																																										
control	10	18	7	18	5	13	16	19	16	15	12	14	14	25	15	18	9	14	27	10	27	20	9	18	14	3	13	10	11	6	17	16	16	13	0	0	0	0	0	0		
stability	8	9	11	3	16	9	14	20	10	14	4	15	13	18	16	14	16	11	19	4	3	14	10	4	6	11	7	7	10	10	17	16	11	3	0	0	0	0	0	0		
personal																																										
control	24	27	27	27	24	19	13	16	21	18	27	21	18	24	17	18	20	15	3	25	27	14	23	25	23	27	27	27	27	18	27	23	20	11	0	0	0	0	0	0		

APPENDIX B-1 RAW SCORES WESTERNS
Male Round Robin Losers

Causal dimensions scale computations — Female (Round Robin) Winners

INDIVID Item #	P1	p2	p3	p4	p5	p6	p7	p8	p9	p10	p11	p12	p13	p14	p15	p16	p17	p18	p19	p20	p21	p22	p23	p24	p25	p26	p27	p28	p29	p30	p31	p32	p33	p34	p35	p36	p37	p38	3p9	p40	p41	p42	p43	p44	p45
1	6	5				6	6	7	8		9		6			7	6		9	7		4	7	6	6			6	7	8	3			5		7	9	6	3	7	7			8	5
2	7	6				6	5	6	7		9		6			7	9		9	9		2	9	5	7			9	7	9	1			7		8	9	7	7	7	7			9	9
3	4	1				2	2	8	5		7		4			5	7		6	1		5	7	7	2			1	8	7	5			7		3	5	2	2	1	1			1	1
4	6	6				3	9	8	8		9		7			6	7		7	8		3	9	5	8			8	9	9	6			7		5	7	6	7	7	8			8	7
5	2	6				9	4	2	5		1		3			5	4		3	6		9	3	8	8			1	5	7	9			5		4	5	6	7	2	1			7	3
6	1	6				7	6	7	7		8		7			9	5		7	7		6	9	6	8			9	8	9	4			4		7	8	6	7	9	7			6	5
7	5	4				6	5	6	5		8		7			7	3		7	5		4	5	6	5			5	6	8	5			8		6	4	8	7	8	1			2	8
8	1	5				6	3	2	5		2		3			4	2		3	2		7	3	2	7			6	2	1	7			5		3	1	5	2	3	1			3	5
9	1	3				6	5	2	6		9		5			6	5		7	8		2	7	4	6			9	6	8	6			7		7	8	4	7	7	7			7	5
10	9	7				6	9	8	8		9		5			5	7		9	8		5	9	5	8			9	8	9	4			8		4	5	7	7	7	7			9	5
11	1	2				5	1	2	2		5		4			2	1		3	1		6	4	5	1			1	4	1	5			1		6	1	3	2	5	5			1	5
12	1	6				5	5	2	2		4		3			3	3		4	1		6	4	5	5			5	6	5				1		7	5	6	2	3	1			5	5
locus causality	8	14	0	0	0	19	17	16	21	0	26	0	18	0	0	22	16	0	23	22	0	12	23	16	20	0	0	24	21	25	13	0	0	16	0	21	25	16	17	23	21	0	0	21	15
external control	4	17	0	0	0	20	12	6	12	0	7	0	9	0	0	12	9	0	10	9	0	22	10	15	20	0	0	12	13	13	16	0	0	11	0	14	11	17	11	8	3	0	0	15	13
stability	10	7	0	0	0	13	8	16	12	0	20	0	15	0	0	14	11	0	16	7	0	15	16	18	6	0	0	7	18	16	15	0	0	16	0	15	10	13	11	14	7	0	0	4	14
personal control	22	19	0	0	0	14	23	22	23	0	27	0	18	0	0	18	23	0	25	25	0	10	27	15	23	0	0	26	24	27	11	0	0	22	0	17	21	20	21	21	22	0	0	26	21

Individual averages

Total responses ---> 29

locus of causality 19.14

external control 12.10

stability 12.[illegible]

personal control 21.14

TEAM	P1	p2	p3	p4	p5	p6	p7	p8	p9	p10	p11	p12	p13	p14	p15	p16	p17	p18	p19	p20	p21	p22	p23	p24	p25	p26	p27	p28	p29	p30	p31	p32	p33	p34	p35	p36	p37	p38	3p9	p40	p41	p42	p43	p44	p45
1	7	6	7	6	8	8	8	4	6	7	9	8	7	4	3	8	6	4	8	5	9	6	7	8	7	5	8	9	7	7	8	7	5	9	9	8	3	5	8	8	9	6	5	6	5
2	7	7	6	9	7	8	7	6	7	8	8	8	7	6	6	8	9	9	9	9	9	1	9	6	7	7	8	9	6	9	9	8	7	9	9	7	6	6	7	9	9	6	6	6	5
3	3	6	8	1	5	8	5	8	6	8	7	8	6	6	6	5	5	6	7	6	8	4	6	5	5	4	8	9	8	6	8	8	5	7	7	2	6	3	2	1	1	3	6	6	3
4	5	6	8	9	8	8	8	8	7	7	9	8	7	8	5	7	7	8	8	9	9	2	9	8	6	6	9	5	8	9	9	8	5	9	8	7	6	6	7	7	9	6	6	6	7
5	5	6	6	1	2	5	2	8	7	3	3	3	8	8	5	4	5	5	2	6	2	7	1	2	6	4	8	6	5	6	3	7	3	1	7	7	8	6	5	2	5	5	9	5	5
6	8	7	8	8	9	8	9	8	4	8	9	8	8	8	9	7	8	7	9	8	9	8	9	8	5	7	8	9	7	9	7	8	8	9	9	7	7	7	5	9	9	6	9	6	5
7	6	6	7	9	5	6	5	9	5	8	8	7	5	4	6	8	7	6	7	7	8	2	4	5	5	7	8	9	8	7	6	8	8	9	7	7	6	6	2	7	6	3	7	5	6
8	5	2	6	1	2	2	2	2	5	3	4	4	7	7	3	3	5	7	2	7	1	6	4	3	5	3	2	5	6	5	2	6	7	1	3	7	6	7	6	2	1	5	7	5	5
9	6	6	7	6	6	7	6	8	7	8	9	8	6	6	6	9	6	8	8	9	8	5	4	8	5	5	6	8	6	8	8	8	7	9	5	8	7	5	3	8	8	5	6	6	5
10	8	7	7	9	9	8	9	8	8	3	9	8	7	8	8	9	9	9	8	7	8	4	9	8	6	6	7	9	7	8	9	9	8	9	8	8	8	7	8	7	9	6	6	6	6
11	4	7	6	1	5	4	5	7	6	5	5	6	6	5	4	2	1	5	5	1	7	6	5	6	5	3	6	7	7	1	7	7	3	1	6	2	6	6	2	2	1	3	1	6	3
12	6	7	6	6	2	7	2	4	3	3	1	2	7	6	5	4	3	5	2	3	1	6	4	2	4	4	6	6	6	6	3	6	2	9	7	8	8	6	6	3	5	3	8	6	6
locus causality	21	19	22	20	23	23	23	20	17	23	27	24	21	18	18	24	20	19	25	22	26	19	20	24	17	17	22	26	20	24	23	23	20	27	23	23	17	17	16	25	26	16	20	22	15
external control	16	15	16	8	6	14	6	14	15	9	8	9	22	21	13	11	13	17	6	16	4	20	6	7	15	11	16	16	17	16	8	16	12	11	17	22	22	20	17	7	11	13	24	6	15
stability	13	23	21	11	15	18	15	24	16	21	20	21	15	15	16	15	13	16	16	14	23	12	15	16	15	14	22	25	23	13	21	23	16	17	16	15	15	12	6	10	2	6	6	5	11
personal control	20	20	21	27	24	24	24	22	22	18	26	24	21	22	19	24	25	26	25	25	26	7	27	22	18	19	24	23	21	26	27	25	20	27	25	22	20	19	22	23	27	16	20	26	12

Team averages

Total responses ---> 45

locus of causality 21.38

external control 13.80

stability 15.78

personal control 22.80

APPENDIX B-1 RAW SCORES WESTERNS
Female Round Robin Winners

Causal dimensions scale computations — Female (Round Robin) Losers

INDIVID	P1	p2	p3	p4	p5	p6	p7	p8	p9	p10	p11	p12	p13	p14	p15	p16	p17	p18	p19	p20	p21	p22	p23	p24	p25	p26	p27	p28	p29	p30	p31	p32	p33	p34	p35	p36	p37	p38	3p9	p40	Individual averages Total responses --> 23
item #																																									locus of causality
1	1		7		1		3	1	2	[illegible]						[illegible]	5	5	5	5	5	3	3	[illegible]	2	2	5	1	7	5	6										16.13
2	[illegible]		[illegible]		1		5	5	4	[illegible]						[illegible]	5	[illegible]	[illegible]	7	5	5	3	[illegible]	3	7	[illegible]	7	4	5	7										
3	1		[illegible]		1		4	1	1	5						3	1	5	[illegible]	1	2	3	2	5	1	[illegible]	1	3	[illegible]	4	3										external control
4	[illegible]		7		1		7	[illegible]	4	1						7	7	7	[illegible]	7	7	7	3	[illegible]	3	[illegible]	[illegible]	5	7	[illegible]	7										15.35
5	1		5		[illegible]		7	[illegible]	[illegible]	1						3	5	3	5	5	5	4	3	[illegible]	7	5	5	3	[illegible]	5	2										stability
6	[illegible]		[illegible]		1		2	3	7	[illegible]						[illegible]	6	[illegible]	7	[illegible]	6	3	1	[illegible]	5	3	5	6	6	[illegible]	6										10.43
7	[illegible]		5		1		3	5	3	[illegible]						1	7	3	5	4	7	2	2	7	2	1	1	5	[illegible]	3	[illegible]										
8	[illegible]		3		[illegible]		5	[illegible]	[illegible]	1						5	5	3	4	1	5	4	[illegible]	[illegible]	7	5	7	1	1	3	2										personal control
9	7		[illegible]		5		5	3	2	[illegible]						[illegible]	5	7	[illegible]	[illegible]	5	5	1	[illegible]	3	5	5	1	6	3	[illegible]										17.74
10	[illegible]		[illegible]		3		4	7	4	5						[illegible]	6	7	[illegible]	3	7	3	1	[illegible]	3	4	[illegible]	1	4	6	[illegible]										
11	1		2		1		4	1	1	5						1	2	5	5	1	2	4	[illegible]	1	1	2	2	4	7	3	2										
12	2		[illegible]		5		[illegible]	5	5	1						3	5	3	7	5	5	[illegible]	[illegible]	[illegible]	3	7	5	5	[illegible]	5	7										
locus causality	17	0	24	0	7	0	10	7	11	27	0	0	0	0	0	26	18	20	20	23	16	11	5	27	10	10	15	[illegible]	21	16	22	C	C	C	C	C	C	C	C	C	
external control	12	0	16	0	17	0	21	23	21	3	0	0	0	0	0	11	15	[illegible]	16	11	15	14	21	27	17	17	17	[illegible]	17	13	11	C	C	C	C	C	C	C	C	C	
stability	11	0	13	0	3	0	11	7	5	19	0	0	0	0	0	5	10	13	16	[illegible]	11	[illegible]	13	13	4	[illegible]	4	12	22	10	14	C	C	C	C	C	C	C	C	C	
personal control	27	0	24	0	5	0	18	21	12	15	0	0	0	0	0	25	18	22	24	17	19	15	7	26	[illegible]	19	20	13	15	17	22	C	C	C	C	C	C	C	C	C	
																																									Team averages
TEAM	P1	p2	p3	p4	p5	p6	p7	p8	p9	p10	p11	p12	p13	p14	p15	p16	p17	p18	p19	p20	p21	p22	p23	p24	p25	p26	p27	p28	p29	p30	p31	p32	p33	p34	p35	p36	p37	p38	3p9	p40	Total responses --> 31
1	5	7	[illegible]	[illegible]	5	[illegible]	7	7	[illegible]	[illegible]	4	5	5	[illegible]	5	[illegible]	4	7	[illegible]	4	5	3	7	[illegible]	2	4	5	1	5	6	[illegible]										locus of causality
2	2	[illegible]	[illegible]	[illegible]	[illegible]	7	7	[illegible]	[illegible]	[illegible]	[illegible]	5	5	7	[illegible]	[illegible]	7	7	7	[illegible]	6	[illegible]	7	[illegible]	3	6	[illegible]	6	5	5	[illegible]										20.29
3	2	3	3	3	1	5	4	1	3	5	2	1	1	7	1	6	2	3	5	1	2	7	5	5	1	2	1	1	5	5	2										
4	1	7	[illegible]	7	[illegible]	[illegible]	6	5	5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7	7	[illegible]	5	6	[illegible]	[illegible]	3	[illegible]	6	7	6	4	5										external control
5	1	7	6	2	3	3	4	7	7	[illegible]	[illegible]	5	5	7	2	[illegible]	6	3	7	5	6	7	[illegible]	[illegible]	7	5	5	5	3	6	[illegible]										16.10
6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5	7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7	7	7	[illegible]	[illegible]	7	[illegible]	[illegible]	[illegible]	5	3	5	5	7	5	7										stability
7	2	5	2	[illegible]	1	4	4	1	[illegible]	[illegible]	2	5	5	6	5	2	5	3	5	2	5	[illegible]	[illegible]	1	2	7	1	5	5	7	[illegible]										10.00
8	2	5	6	2	4	5	2	[illegible]	5	5	5	5	1	[illegible]	4	7	5	7	7	7	6	7	[illegible]	[illegible]	7	1	7	5	6	5	6										
9	5	6	[illegible]	[illegible]	[illegible]	6	[illegible]	7	[illegible]	[illegible]	[illegible]	5	[illegible]	[illegible]	6	[illegible]	6	7	6	[illegible]	5	5	[illegible]	[illegible]	3	[illegible]	5	4	[illegible]	4	7										personal control
10	[illegible]	6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6	[illegible]	[illegible]	5	[illegible]	7	[illegible]	7	[illegible]	7	[illegible]	[illegible]	6	7	7	[illegible]	3	2	[illegible]	5	3	6	7										21.10
11	1	[illegible]	2	3	1	1	3	1	3	5	2	1	1	3	1	1	2	3	5	1	2	[illegible]	5	1	1	5	2	1	4	3	2										
12	5	5	3	2	5	3	4	[illegible]	5	1	7	5	3	7	3	7	5	3	[illegible]	5	5	7	[illegible]	[illegible]	3	1	5	5	6	[illegible]	[illegible]										
locus causality	19	22	27	24	23	17	20	20	25	27	21	19	22	24	18	24	17	21	25	20	17	16	25	27	10	15	15	10	21	15	22	C	C	C	C	C	C	C	C	C	
external control	[illegible]	17	15	[illegible]	12	11	10	25	17	15	21	15	[illegible]	20	[illegible]	22	16	13	22	17	17	21	23	27	17	7	17	15	15	17	23	C	C	C	C	C	C	C	C	C	
stability	5	17	7	12	3	10	11	3	12	18	[illegible]	7	7	16	7	[illegible]	[illegible]	[illegible]	15	4	[illegible]	19	16	7	4	14	4	7	14	15	13	0	0	0	C	C	C	C	C	C	
personal control	12	22	27	24	27	24	22	22	19	27	27	19	21	22	24	24	23	21	22	25	17	21	22	27	[illegible]	18	20	18	16	15	21	C	C	C	C	C	C	C	C	C	

APPENDIX B-1 RAW SCORES WESTERNS
Female Round Robin Losers

Causal dimensions scale computations								Male (Play-offs) Winners																																	
																																									Individual averages	
INDIVID	P1	p2	p3	p4	p5	p6	p7	p8	p9	p10	p11	p12	p13	p14	p15	p16	p17	p18	p19	p20	p21	p22	p23	p24	p25	p26	p27	p28	p29	p30	p31	p32	p33	p34	p35	p36	p37	p38	3p9	p40	Total responses -->	14
Item #																																									locus of causality	
1				5	6	8	9	7	7	9	7	7	3	1	8	7	5																								21.50	
2				9	9	9	9	8	9	9	7	6	9	5	9	9	8																									
3				7	7	9	9	6	8	5	1	8	2	2	7	6	6																								external control	
4				9	9	8	9	8	7	8	8	9	9	5	8	9	8																								12.93	
5				6	5	1	5	4	6	9	3	9	6	6	2	4	2																								stability	
6				8	9	8	8	9	7	8	7	9	7	7	9	9	3																								14.71	
7				1	9	8	1	7	4	9	7	8	2	7	7	7	5																									
8				7	1	1	1	3	6	4	2	5	6	7	2	3	2																								personal control	
9				7	9	9	8	8	5	9	7	5	7	5	8	9	8																								24.57	
10				9	9	9	9	8	7	9	7	9	8	6	8	9	8																									
11				1	1	9	1	4	3	3	1	1	1	1	7	5	3																									
12				9	3	1	1	2	6	2	6	3	7	7	8	6	2																									
locus	0	0	0	20	24	25	25	24	19	26	21	21	17	13	25	25	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
causality																																										
external																																										
control	0	0	0	22	9	3	7	9	18	15	11	17	19	20	12	13	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
stability	0	0	0	9	17	26	11	17	15	17	9	17	5	10	21	18	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
personal																																										
control	0	0	0	27	27	26	27	24	23	26	22	24	26	16	25	27	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
																																									Team averages	
TEAM	P1	p2	p3	p4	p5	p6	p7	p8	p9	p10	p11	p12	p13	p14	p15	p16	p17	p18	p19	p20	p21	p22	p23	p24	p25	p26	p27	p28	p29	p30	p31	p32	p33	p34	p35	p36	p37	p38	3p9	p40	Total respones:-->	17
1	9	8	2	9	9	9	8	9	7	8	6	9	2	5	8	8	4																								locus of causality	
2	8	9	5	9	9	9	9	9	9	9	8	9	8	9	9	8	7																								23.00	
3	5	1	5	5	7	9	8	7	8	8	1	9	2	5	8	2	5																									
4	6	9	3	9	9	9	9	9	7	9	9	9	9	9	8	8	4																								external control	
5	3	2	3	1	8	1	1	4	4	9	5	2	6	1	8	4	6																								10.88	
6	8	9	8	9	9	9	9	8	6	9	9	9	7	9	9	7	5																								stability	
7	8	3	8	5	9	9	1	8	5	5	6	7	1	1	7	3	5																								13.53	
8	5	3	2	1	4	1	1	2	6	1	5	2	7	1	2	4	6																									
9	7	9	4	8	9	9	9	7	7	9	9	7	6	9	8	8	7																								personal control	
10	8	9	5	9	9	9	9	8	5	9	9	7	9	7	9	9	7																								24.41	
11	6	2	2	1	1	9	1	3	7	1	1	5	1	1	2	1	2																									
12	5	2	7	1	6	1	1	5	1	1	8	2	8	1	2	5	7																									
locus	24	26	14	26	27	27	26	24	20	26	24	25	15	23	25	23	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
causality																																										
external																																										
control	13	7	12	3	18	3	3	11	11	11	18	6	21	3	12	13	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
stability	19	6	15	11	17	27	10	18	20	14	8	21	4	7	17	6	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
personal																																										
control	22	27	13	27	27	27	27	26	21	27	26	25	26	25	26	25	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

APPENDIX B-2 RAW SCORES WESTERNS
Male Playoffs Winners

Causal dimensions scale computations								Male (Playoffs) Losers																																		
																																									Individual averages	
INDIVID	P1	p2	p3	p4	p5	p6	p7	p8	p9	p10	p11	p12	p13	p14	p15	p16	p17	p18	p19	p20	p21	p22	p23	p24	p25	p26	p27	p28	p29	p30	p31	p32	p33	p34	p35	p36	p37	p38	3p9	p40	Total responses -->	21
Item #																																									locus of causality	
1	5	1	8			8	6		9	6		5	2	6	6	8	1	1		1			8		1	5	9	1	8												17.43	
2	7	5	7			6	9		9	6		6	6	6	6	7	5	1		1			6		8	8	9	5	9													
3	2	1	3			5	9		9	3		5	2	4	6	4	1	8		1			7		5	3	2	9	7												external control	
4	8	9	7			7	7		9	7		6	8	5	7	8	5	1		8			6		9	8	9	5	8												11.71	
5	2	2	6			6	4		1	6		6	2	6	4	3	1	8		3			7		1	6	7	5	4												stability	
6	4	9	5			7	8		9	9		8	2	7	9	7	5	1		9			5		1	8	9	1	6												12.90	
7	3	5	1			7	7		9	3		5	6	7	3	6	3	1		9			3		9	3	3	1	7													
8	1	1	4			5	4		1	4		5	2	6	5	3	2	8		3			5		1	5	6	9	1												personal control	
9	6	5	5			8	5		9	7		6	2	4	5	6	7	1		7			6		9	5	8	3	8												20.86	
10	9	9	8			8	9		9	7		8	6	5	7	8	1	1		7			8		8	6	9	6	8													
11	5	8	1			6	1		8	2		5	2	6	2	3	1	1		1			5		1	1	1	9	1													
12	2	1	5			4	6		1	3		4	2	6	3	3	5	9		3			6		1	6	2	1	1													
locus	15	15	18	0	0	23	19	0	27	22	0	17	6	17	20	19	13	3	0	17	0	0	21	0	19	16	26	5	26	0	0	0	0	0	0	0	0	0	0	0		
causality																																										
external																																										
control	6	4	15	0	0	15	14	0	3	12	0	15	6	16	12	8	8	27	0	8	0	0	18	0	3	17	15	15	6	0	0	0	0	0	0	0	0	0	0	0		
stability	10	15	5	0	0	18	17	0	24	8	0	15	12	17	13	13	5	11	0	11	0	0	15	0	15	7	8	19	15	0	0	0	0	0	0	0	0	0	0	0		
personal																																										
control	25	23	22	0	0	23	25	0	27	20	0	18	24	16	20	23	11	3	0	17	0	0	24	0	27	22	27	18	25	0	0	0	0	0	0	0	0	0	0	0		
																																									Team averages	
TEAM	P1	p2	p3	p4	p5	p6	p7	p8	p9	p10	p11	p12	p13	p14	p15	p16	p17	p18	p19	p20	p21	p22	p23	p24	p25	p26	p27	p28	p29	p30	p31	p32	p33	p34	p35	p36	p37	p38	3p9	p40	Total responses:-->	32
1	8	1	4	7	6	7	7		9	8	9	8	2	4	4	7	9	9	6	9	5	9	3		9	5	8	7	6	7	8	3	1								locus of causality	
2	6	5	8	9	5	7	9		9	8	9	5	6	6	6	7	7	9	6	9	5	9	5		9	9	9	9	6	7	7	6	9								20.19	
3	3	1	3	5	3	5	6		2	3	8	6	1	5	4	4	3	1	4	3	4	1	3		1	1	1	9	5	8	8	6	1									
4	9	8	6	9	5	8	9		8	8	9	5	8	6	7	8	6	9	6	9	3	3	7		8	9	9	5	5	8	6	4	9								external control	
5	3	8	6	1	3	5	9		5	2	8	5	9	5	7	2	5	1	2	9	4	1	8		1	7	1	1	5	8	8	5	1								12.94	
6	7	8	8	9	6	7	9		9	8	9	6	9	6	6	7	7	9	6	9	5	9	7		6	6	9	9	6	8	6	5	9								stability	
7	4	5	2	5	7	5	6		9	2	1	5	8	7	4	5	3	1	4	9	4	3	5		1	8	3	2	4	5	9	4	1								11.03	
8	2	5	7	1	3	5	3		5	2	1	5	8	6	3	3	7	1	2	8	5	1	8		1	5	2	1	3	8	6	9	9									
9	7	5	7	8	3	8	6		9	8	9	6	2	6	6	8	4	9	6	9	6	6	5		9	6	9	9	6	8	9	6	9								personal control	
10	8	8	8	8	3	7	9		5	8	9	6	8	5	6	8	7	9	6	7	5	7	8		9	1	9	9	6	6	7	4	1								20.97	
11	4	1	2	3	3	5	1		5	2	1	6	1	4	3	3	3	1	5	2	7	1	3		1	1	2	1	3	5	9	4	1									
12	2	2	6	1	5	5	5		5	2	1	5	8	5	3	2	9	1	2	7	5	7	8		1	5	7	1	4	7	6	5	2									
locus	19	14	19	24	15	22	22	0	27	25	27	18	13	16	16	22	20	27	24	27	18	26	15	0	27	17	28	25	18	23	23	14	18	0	0	0	0	0	0	0		
causality																																										
external																																										
control	7	15	19	3	11	15	17	0	15	8	10	15	25	16	13	7	21	3	8	24	14	8	24	0	3	17	10	3	12	23	20	19	12	0	0	0	0	0	0	0		
stability	11	7	7	13	13	16	13	0	16	7	11	17	10	16	11	12	9	3	13	14	15	5	11	0	3	10	8	12	12	18	26	14	3	0	0	0	0	0	0	0		
personal																																										
control	24	23	24	26	13	22	27	0	20	24	27	16	25	17	23	23	20	27	22	25	13	19	20	0	27	19	27	23	19	23	20	14	19	0	0	0	0	0	0	0		

APPENDIX B-2 RAW SCORES: WESTERNS
Male Playoffs Losers

Causal dimensions scale computations								Female (Play-off) Winners																																								
																																														Individual averages		
INDIVID	P1	p2	p3	p4	p5	p6	p7	p8	p9	p10	p11	p12	p13	p14	p15	p16	p17	p18	p19	p20	p21	p22	p23	p24	p25	p26	p27	p28	p29	p30	p31	p32	p33	p34	p35	p36	p37	p38	p39	p40	p41	p42	p43	p44	p45	Total responses -->		24
Item #																																														locus of causality		
1	8	5				5	7	5	4		1		6			7	9	7	8	8			9				9	9	6	9				7				3			9	3	7		5	18.96		
2	7	6				5	6	7	6		9		8			8	9	8	9	9			6				9	9	4	9				9				5			9	3	8		5			
3	2	6				4	2	7	5		1		3			6	7	7	8	1			5				7	5	3	6				5				2			1	5	2		5	external control		
4	8	6				6	9	6	3		9		7			9	7	8	8	9			6				8	9	7	9				9				7			9	5	8		6	13.33		
5	1	5				4	5	5	4		3		3			4	5	6	3	1			4				3	9	9	6				1				7			1	7	9		4	stability		
6	8	6				5	6	5	3		3		8			8	7	7	8	9			1				9	9	2	9				7				5			9	6	5		6	13.25		
7	5	7				5	7	7	3		1		5			5	7	6	7	7			4				7	5	4	7				1				8			1	5	5		7			
8	3	5				4	4	5	3		3		3			3	6	2	3	1			7				7	9	3	2				5				6			1	7	5		4	personal control		
9	8	6				5	4	5	2		2		8			8	8	8	8	9			6				9	9	5	9				5				3			9	5	6		6	21.92		
10	8	7				6	5	8	4		9		8			9	8	9	9	9			7				9	9	5	9				9				6			9	3	7		3			
11	1	6				5	1	5	5		1		3			5	1	7	6	1			5				3	5	7	1				1				3			1	5	3		6			
12	7	6				5	5	5	5		5		5			3	3	2	2	1			3				4	9	6	5				5				6			1	6	5		6			
locus	24	17	0	0	0	15	17	15	9	0	6	0	22	0	0	23	24	22	24	26	0	0	16	0	0	0	27	27	13	27	0	0	0	19	0	0	0	11	0	0	27	14	18	0	17			
causality																																																
external																																																
control	11	16	0	0	0	13	14	15	12	0	11	0	11	0	0	10	14	10	8	3	0	0	14	0	0	0	14	27	18	13	0	0	0	11	0	0	0	19	0	0	3	20	19	0	14			
stability	8	19	0	0	0	14	10	19	13	0	3	0	11	0	0	16	15	20	21	9	0	0	14	0	0	0	17	15	14	14	0	0	0	7	0	0	0	13	0	0	3	15	10	0	18			
personal																																																
control	23	19	0	0	0	17	20	21	13	0	27	0	23	0	0	26	24	25	26	27	0	0	19	0	0	0	26	27	16	27	0	0	0	27	0	0	0	18	0	0	27	11	23	0	14			
																																														Team averages		
TEAM	P1	p2	p3	p4	p5	p6	p7	p8	p9	p10	p11	p12	p13	p14	p15	p16	p17	p18	p19	p20	p21	p22	p23	p24	p25	p26	p27	p28	p29	p30	p31	p32	p33	p34	p35	p36	p37	p38	3p9	p40	p41	p42	p43	p44	p45	Total responses-->		42
1	5	6	7	5	7	5	6	5	5	6	1	8	7	7	8	8	8	7	9	9	8	9	7	9	5	6	8	9	6	8	8	7	5	5	8	9		6			9	5	6	9	8	locus of causality		
2	8	5	8	9	7	5	6	7	6	6	8	8	7	8	8	9	8	8	8	9	8	9	9	9	6	6	7	9	5	9	9	7	8	9	6	9		7			9	7	8	5	4	20.64		
3	1	5	6	1	1	4	1	6	3	3	1	1	5	5	6	7	7	8	7	5	9	6	7	1	6	5	7	5	3	6	5	5	7	5	3	1		3			1	3	2	6	6			
4	9	5	7	9	9	6	6	9	3	6	9	8	7	8	7	8	7	9	9	9	9	9	9	9	6	6	9	9	5	9	8	7	7	9	7	8		7			9	4	7	4	5	external control		
5	5	6	8	5	2	5	5	5	5	3	2	3	8	7	2	4	7	3	2	1	3	6	4	5	6	5	3	9	6	1	3	6	3	5	4	5		8			1	4	5	6	6	13.10		
6	9	5	9	9	5	4	5	5	3	7	1	8	8	8	6	9	9	8	8	9	9	8	8	9	6	4	8	9	7	8	7	6	8	7	8	7		5			9	7	6	4	4	stability		
7	5	5	9	9	5	6	8	5	4	5	1	1	5	5	6	5	6	8	7	9	9	5	3	5	7	5	7	5	3	7	4	7	8	1	7	1		7			1	5	4	7	7	13.38		
8	2	6	8	5	4	5	6	5	5	2	1	3	7	7	4	4	6	3	2	1	3	4	3	1	5	6	5	9	6	1	2	6	2	5	3	6		4			1	3	5	4	5			
9	7	4	7	5	7	4	5	5	3	7	1	6	7	7	7	8	8	9	8	9	9	9	9	9	8	6	9	9	4	9	8	7	7	5	4	9		7			9	7	7	5	7	personal control		
10	8	5	6	5	9	5	4	7	5	6	1	9	8	8	9	9	8	9	9	9	9	9	9	9	7	8	8	9	6	9	9	5	6	9	8	9		6			9	5	8	5	4	22.14		
11	2	5	5	1	1	6	1	5	3	3	1	1	4	3	2	5	1	7	7	5	5	5	5	1	5	3	2	5	4	1	4	4	5	1	5	1		3			1	3	1	8	8			
12	1	4	7	5	3	4	1	5	4	6	1	5	8	6	3	6	5	1	2	2	4	4	2	5	7	7	7	1	6	5	5	5	2	5	5	5		5			5	3	5	4	6			
locus	21	15	23	19	19	13	16	15	11	20	3	22	22	22	21	25	25	24	25	27	26	26	24	27	19	16	25	27	17	25	23	20	20	17	20	25	0	18	0	0	27	19	19	18	19			
causality																																																
external																																																
control	8	16	23	15	9	14	12	15	14	11	4	11	23	20	9	14	18	7	6	4	10	14	9	11	18	18	15	19	18	7	10	17	7	15	12	16	0	17	0	0	7	10	15	14	16			
stability	8	15	20	11	7	16	10	16	10	11	3	3	14	13	14	17	14	23	21	19	23	16	15	7	18	13	16	15	10	14	13	16	20	7	15	3	0	13	0	0	3	11	7	21	21			
personal																																																
control	25	15	21	23	25	16	16	23	14	18	18	25	22	24	24	26	23	26	26	27	26	27	27	27	19	20	24	27	16	27	26	19	21	27	21	26	0	20	0	0	27	16	23	14	13			

APPENDIX B-2 RAW SCORES WESTERNS
Female Playoffs Winners

Causal dimensions scale computations

Female (Play offs) Losers

INDIVID	P1	p2	p3	p4	p5	p6	p7	p8	p9	p10	p11	p12	p13	p14	p15	p16	p17	p18	p19	p20	p21	p22	p23	p24	p25	p26	p27	p28	p29	p30	p31	p32	p33	p34	p35	p36	p37	p38	3p9	p40
item #																																								
1	8		8			4	8	8	7				9			9		8	8	9	5																			
2	9		7			7	7	9	7				8			9		8	9	9	5																			
3	6		4			3	6	3	8				1			5		3	1	8	1																			
4	9		9			9	9	7	9				5			9		8	7	9	5																			
5	3		9			1	2	9	4				1			4		3	3	1	7																			
6	9		7			8	8	4	9				8			9		8	9	9	5																			
7	6		5			7	8	2	5				9			6		2	5	8	2																			
8	2		6			3	4	5	5				1			3		2	1	1	5																			
9	9		7			5	6	6	5				9			9		8	9	9	5																			
10	9		9			9	8	9	7				9			9		8	9	9	5																			
11	5		2			2	1	1	7				1			4		2	1	9	1																			
12	2		5			2	2	5	1				1			1		2	1	1	5																			
locus causality	26	0	22	0	0	17	22	18	21	0	0	0	26	0	0	27	0	24	26	27	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
external control	7	0	20	0	0	6	8	19	10	0	0	0	3	0	0	8	0	7	5	3	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
stability	17	0	11	0	0	12	15	6	20	0	0	0	11	0	0	15	0	7	7	25	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
personal control	27	0	25	0	0	25	24	25	23	0	0	0	22	0	0	27	0	24	25	27	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TEAM	P1	p2	p3	p4	p5	p6	p7	p8	p9	p10	p11	p12	p13	p14	p15	p16	p17	p18	p19	p20	p21	p22	p23	p24	p25	p26	p27	p28	p29	p30	p31	p32	p33	p34	p35	p36	p37	p38	3p9	p40
1	5	8	8	6	9	3	6	9	7	9	9	9	9	9	7	9	7	7	9	8	5																			
2	4	9	8	8	9	8	8	8	7	9	6	9	9	9	8	9	8	7	8	8	5																			
3	3	1	2	4	1	3	3	1	7	9	1	5	9	6	1	7	3	3	5	7	1																			
4	3	6	7	9	9	8	7	9	7	9	8	9	9	9	8	9	8	7	8	8	5																			
5	7	9	5	2	5	3	4	5	7	1	3	5	9	2	1	5	9	4	9	1	5																			
6	9	9	6	8	9	7	7	9	8	9	8	9	9	9	9	9	9	8	9	9	6																			
7	4	9	2	6	1	7	7	1	6	5	4	9	9	7	5	8	8	2	7	7	4																			
8	6	9	6	2	4	3	3	4	8	1	1	1	1	2	1	1	9	2	8	1	6																			
9	3	9	7	8	5	8	6	5	3	9	7	9	9	9	8	9	7	8	9	9	5																			
10	3	9	8	8	9	8	9	9	5	9	8	9	9	9	9	9	9	8	9	8	5																			
11	5	1	2	1	1	3	3	1	8	5	3	1	1	6	4	3	3	2	5	7	1																			
12	5	7	6	2	5	3	4	5	5	1	3	5	1	9	2	3	8	2	6	3	6																			
locus causality	17	26	21	22	23	18	19	23	18	27	24	27	27	27	24	27	23	23	27	26	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
external control	18	25	17	6	14	9	11	14	20	3	7	11	11	13	4	9	26	8	23	5	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
stability	12	11	6	11	3	13	13	3	21	19	8	15	19	19	10	18	14	7	17	21	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
personal control	10	24	23	25	27	24	24	26	19	27	22	27	27	27	25	27	25	22	25	24	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Individual averages
Total responses---> 12
locus of causality 22.58
external control 9.42
stability 12.50
personal control 24.08

Team averages
Total responses---> 21
locus of causality 23.10
external control 12.90
stability 12.82
personal control 23.57

APPENDIX B-2 RAW SCORES WESTERNS
Female Playoffs Losers

APPENDIX C

APPENDIX C-1 PROVINCIALS DEMOGRAPHICS

VOLLEYBALL QUESTIONNAIRE

Age: ______ **Gender:** male female (please circle)

Court time:

Please circle the number of the description that best represents the amount of playing time you had in this match:

1. minor (did not get in or had a minimal amount of court time)
2. average (was a starter and was substituted after some court time or was a bench player who was substituted in and received some court time OR was a regular substitute for specialty situations)
3. major (either started and remained in for most or all of the match or came in from the bench early and stayed in for most of the match)

Match significance:

Please circle the number that you think best represents the importance of the match to you personally:

very important important not important

9 8 7 6 5 4 3 2 1

Please circle the number that you think best represents the importance of the match to your team:

very important important not important

9 8 7 6 5 4 3 2 1

The questionnaire consists of three parts: 1) outcome, 2) team performance, and 3) personal performance. In each part, you will be asked to assess your perceptions as to the reasons why the match turned out as it did. Please work independently in responding to the various items on the questionnaire. Your frank and honest responses will contribute to the significance of the information obtained. Once you have completed the questionnaire, please return it to your coach. He/she will seal the completed questionnaires in the envelope provided and return them to the principal investigator. Your responses are completely confidential and cannot be traced back to yourself.

If you have questions relating to the meaning of any of the specific items on the questionnaire, please feel free to ask your coach for an interpretation.

Thank you for your contribution to this research project. Please turn over and begin the questionnaire.

Appendix C-2

CAUSAL DIMENSION SCALE II
(McAuley, Duncan, & Russell, 1992)

TEAM OUTCOME

1. Did your team win or lose the match? **won** **lost** (please circle)

2. Please provide a reason or reasons for this outcome:

Instructions: Think about the reason or reasons you have written above. The items below concern your impressions or opinions of this cause or causes of your team's performance. Circle one number for each of the following questions.

Is the cause(s) something:

1.	That reflects an aspect of your team	9	8	7	6	5	4	3	2	1	reflects an aspect of the situation
2.	That is manageable by your team	9	8	7	6	5	4	3	2	1	not manageable by your team
3.	That is permanent	9	8	7	6	5	4	3	2	1	temporary
4.	That your team can regulate	9	8	7	6	5	4	3	2	1	your team cannot regulate
5.	Over which others outside of your team have control	9	8	7	6	5	4	3	2	1	over which others outside of your team have no control
6.	That is within your team	9	8	7	6	5	4	3	2	1	outside of your team
7.	That is stable over time	9	8	7	6	5	4	3	2	1	variable over time
8.	That is under the power of other people outside of your team	9	8	7	6	5	4	3	2	1	not under the power of other people outside of your team
9.	That is about your team	9	8	7	6	5	4	3	2	1	something about others
10.	Over which your team has power	9	8	7	6	5	4	3	2	1	over which your team has no power
11.	That is unchangeable	9	8	7	6	5	4	3	2	1	changeable
12.	Other people outside of your team can regulate	9	8	7	6	5	4	3	2	1	other people outside of your team cannot regulate

Please continue to the team performance questionnaire

Appendix C-3

CAUSAL DIMENSION SCALE II

(McAuley, Duncan, & Russell, 1992)

TEAM PERFORMANCE

1. What were your team's major performance goals for this specific match? (please list)

2. How successful was your team in achieving the goals listed above?

successful				partially successful				unsuccessful
9	8	7	6	5	4	3	2	1

3. Why was your team successful/unsuccessful in reaching the goals set prior to the match?

Instructions: Think about the reason or reasons you have answered in question #3 above. The items below concern your impressions or opinions of this cause or causes of your team's) performance. Circle one number for each of the following questions.

Is the cause(s) something:

1. That reflects an aspect of your team	9	8	7	6	5	4	3	2	1	reflects an aspect of the situation
2. That is manageable by your team	9	8	7	6	5	4	3	2	1	not manageable by your team
3. That is permanent	9	8	7	6	5	4	3	2	1	temporary
4. That your team can regulate	9	8	7	6	5	4	3	2	1	your team cannot regulate
5. Over which others outside of your team have control	9	8	7	6	5	4	3	2	1	over which others outside of your team have no control
6. That is within your team	9	8	7	6	5	4	3	2	1	outside of your team
7. That is stable over time	9	8	7	6	5	4	3	2	1	variable over time
8. That is under the power of other people outside of your team	9	8	7	6	5	4	3	2	1	not under the power of other people outside of your team
9. That is about your team	9	8	7	6	5	4	3	2	1	something about others
10. Over which your team has power	9	8	7	6	5	4	3	2	1	over which your team has no power
11. That is unchangeable	9	8	7	6	5	4	3	2	1	changeable
12. Other people out side of your team can regulate	9	8	7	6	5	4	3	2	1	other people outside of your team cannot regulate

Please turn over and complete the individual performance questionnaire.

Appendix C-4

CAUSAL DIMENSION SCALE II

(McAuley, Duncan, & Russell, 1992)

INDIVIDUAL PERFORMANCE

1. What were your personal performance goals for this specific match? (please list)

2. How successful were you in achieving the goals listed above?

successful				partially successful				unsuccessful
9	8	7	6	5	4	3	2	1

3. Why were you successful/unsuccessful in reaching the goals set prior to the match?

Instructions: Think about the reason or reasons you have answered in question #3 above. The items below concern your impressions or opinions of this cause or causes of your personal performance. Circle one number for each of the following questions.

Is the cause(s) something:

1. That reflects an aspect of yourself	9	8	7	6	5	4	3	2	1	reflects an aspect of the situation
2. That is manageable by you	9	8	7	6	5	4	3	2	1	not manageable by you
3. That is permanent	9	8	7	6	5	4	3	2	1	temporary
4. That you can regulate	9	8	7	6	5	4	3	2	1	you cannot regulate
5. Over which others have control	9	8	7	6	5	4	3	2	1	over which others have no control
6. That is inside of you	9	8	7	6	5	4	3	2	1	outside of you
7. That is stable over time	9	8	7	6	5	4	3	2	1	variable over time
8. That is under the power of other people	9	8	7	6	5	4	3	2	1	not under the power of other people
9. That is about you	9	8	7	6	5	4	3	2	1	something about others
10. Over which you have power	9	8	7	6	5	4	3	2	1	over which you have no power
11. That is unchangeable	9	8	7	6	5	4	3	2	1	changeable
12. Other people can regulate	9	8	7	6	5	4	3	2	1	other people cannot regulate

Thankyou for completing this questionnaire.

APPENDIX D

Causal dimensions scale computations: Male Outcome (Losers)

INDIVID	P1	p2	p3	p4	p5	p6	p7	p8	p9	p10	p11	p12	p13	p14	p15	p16	p17	p18	p19	p20	p21	p22	p23	p24	p25	p26	p27	p28	p29	p30	p31	p32	p33	p34	p35	p36	p37	p38	3p9	p40	p41	p42	p43
item #																																											
1	5	3	7	7	5	8	7	5	6	2	5	7	5	6	9	7	7	7	5	3	3	1	3	6	7	7	7	1	3	4	3	7	6	6	6	2	3	5	7	5	8	5	4
2	6	7	6	6	6	7	5	4	6	9	8	9	8	5	9	7	9	9	6	7	8	9	9	7	8	7	9	7	7	5	7	7	6	8	7	9	7	7	7	6	7	9	8
3	2	1	7	3	3	6	6	2	1	2	1	1	1	5	6	5	2	1	4	2	1	1	1	5	3	3	1	1	2	3	3	2	4	2	2	2	2	2	1	3	1	1	1
4	8	5	7	8	7	6	5	5	9	8	9	9	8	6	6	5	8	8	2	8	8	9	9	7	7	6	6	7	7	7	6	8	7	4	6	1	7	5	9	5	5	9	9
5	2	1	5	9	8	4	1	6	5	1	4	2	6	4	1	6	1	1	2	8	2	1	1	1	5	3	2	6	8	6	6	3	5	1	1	1	9	1	1	2	9	9	4
6	7	5	8	7	7	8	5	4	9	9	9	8	9	6	9	5	9	9	3	8	9	9	9	8	6	7	7	9	2	8	7	7	7	9	6	9	5	9	9	9	8	6	9
7	3	3	3	6	7	3	5	5	1	3	2	7	2	2	6	5	4	2	4	4	5	9	5	1	4	2	6	4	1	4	4	8	3	4	5	1	5	5	5	3	1	2	3
8	2	1	2	1	6	3	2	2	5	1	5	2	6	7	1	6	2	1	8	8	2	1	1	1	2	3	1	8	2	4	3	8	3	1	1	1	1	4	1	1	1	1	3
9	8	7	9	9	6	8	7	7	5	9	7	8	8	3	9	5	6	9	7	7	8	9	9	9	7	7	9	6	7	6	7	7	7	9	9	9	8	7	8	8	7	5	5
10	8	8	8	9	8	6	7	6	9	9	9	9	7	5	7	5	9	9	9	8	9	9	9	6	6	7	8	7	9	7	7	8	6	9	9	6	8	8	9	8	8	9	9
11	1	3	3	1	3	5	4	2	1	1	1	1	8	3	6	5	1	1	1	2	1	1	1	1	1	2	1	4	1	4	3	5	3	1	1	2	2	2	1	5	2	1	1
12	2	3	2	1	7	4	2	3	5	1	6	2	5	5	2	5	2	1	1	2	2	1	1	3	9	4	3	6	4	6	3	6	7	1	1	2	1	5	1	5	2	9	4
locus causality	20	15	24	23	18	24	19	16	20	20	21	23	22	15	27	17	22	25	15	18	20	19	21	23	20	21	23	16	12	18	17	21	20	24	21	20	16	21	24	22	23	16	18
external control	6	5	9	11	21	11	5	11	15	3	15	6	17	16	4	17	5	3	11	18	6	3	3	5	16	10	6	20	14	16	12	17	15	3	3	4	11	10	3	8	12	19	11
stability	6	7	13	10	13	14	15	9	3	6	4	9	11	10	18	15	7	4	9	8	7	11	7	7	8	7	8	9	4	11	10	15	10	7	8	5	9	9	7	11	4	4	5
personal control	22	20	21	23	21	19	17	15	24	26	26	27	23	16	22	17	26	26	17	23	25	27	27	20	21	20	23	21	23	19	20	23	19	21	22	16	22	20	25	19	20	27	26

Individual averages

Total responses ---> 43

locus of causality 20.00

external control 10.14

stability 8.70

personal control 21.79

Causal dimensions scale computations: Male Outcome (Winners)

INDIVID	P1	p2	p3	p4	p5	p6	p7	p8	p9	p10	p11	p12	p13	p14	p15	p16	p17	p18	p19	p20	p21	p22	p23	p24	p25	p26	p27	p28	p29	p30	p31	p32	p33	p34	p35	p36	p37	p38	3p9	p40
item #																																								
1	7	8	7	8	5	7	9	9	7	8	5	7	8	9	9	7	8	8	7	5	7	8	7	8	8	6	7	7	5	5	9	9	7	8	7					
2	8	6	8	7	7	8	7	8	7	7	7	5	9	9	9	7	7	9	7	6	8	8	9	8	8	6	7	9	4	9	6	8	8	8	8					
3	6	4	7	6	6	7	6	7	6	6	3	4	8	7	6	6	7	4	9	4	4	7	8	9	8	5	5	4	5	5	5	6	8	8	8					
4	6	5	9	8	8	5	7	9	7	4	8	8	8	9	8	7	8	8	7	6	5	8	9	8	7	7	6	8	3	9	9	8	8	8	6					
5	3	3	8	5	3	4	7	3	5	2	2	6	6	3	2	1	8	3	9	3	8	7	1	8	5	5	3	3	1	2	3	3	2	8	4					
6	9	7	8	7	8	8	8	9	7	8	7	7	9	9	9	9	9	7	9	8	6	9	9	8	8	7	8	7	9	8	8	9	8	8	8					
7	4	4	8	7	6	4	7	7	7	3	7	8	8	5	6	7	7	7	8	3	4	5	5	8	7	4	7	8	3	8	5	4	8	6	6					
8	2	3	5	6	3	3	2	3	4	5	2	8	2	3	2	1	3	6	6	5	7	3	2	7	3	5	3	3	1	5	4	1	1	3	4					
9	8	8	9	6	8	5	8	9	6	9	7	5	7	9	8	9	7	4	7	5	7	8	7	9	9	6	7	8	8	6	3	7	8	8	7					
10	6	8	9	6	9	7	8	2	7	7	7	5	9	9	7	7	6	9	6	5	4	9	9	9	8	7	7	8	3	8	7	8	8	7	9					
11	5	6	5	7	5	5	7	7	6	5	6	5	6	5	5	5	6	1	8	3	5	4	8	8	6	4	5	7	4	7	5	4	6	8	4					
12	3	2	5	7	3	3	7	1	7	7	2	7	4	3	7	7	5	4	7	7	7	1	3	7	3	6	3	3	1	1	4	1	1	3	4					
locus causality	24	23	24	21	21	20	25	27	20	25	19	19	24	27	26	25	24	19	23	18	20	25	23	25	25	19	22	22	22	19	20	25	23	24	22	0	0	0	0	0
external control	8	8	18	18	9	10	16	7	16	14	6	21	12	9	11	9	16	13	22	15	22	11	6	22	11	16	9	9	3	8	11	5	4	14	12	0	0	0	0	0
stability	15	14	20	20	17	16	20	21	19	14	16	17	22	17	17	18	20	12	25	10	13	16	21	25	21	13	17	19	12	20	15	14	22	22	18	0	0	0	0	0
personal control	20	19	26	21	24	20	22	19	21	18	22	18	26	27	24	21	21	26	20	17	17	25	27	25	23	20	20	25	10	26	22	24	24	23	23	0	0	0	0	0

Individual averages

Total response 35

locus of causality 22.57

external control 12.03

stability 17.74

personal control 21.80

APPENDIX D RAW SCORES PROVINCIALS
Male Outcome

Causal dimensions scale computations — Female Losers (Outcome)

INDIVID	P1	p2	p3	p4	p5	p6	p7	p8	p9	p10	p11	p12	p13	p14	p15	p16	p17	p18	p19	p20	p21	p22	p23	p24	p25	p26	p27	p28	p29	p30	p31	p32	p33	p34	p35	p36	p37	p38	3p9	p40
Item #																																								
1	7	5	5	7	7	7	7	5	5	8	7	9	7	4	8	9	4	7	7	5	8	7	9	3																
2	8	8	7	7	5	8	4	9	8	9	9	9	9	6	9	9	6	8	8	7	5	7	8	7																
3	5	2	3	3	3	1	8	3	1	2	4	1	3	5	2	1	5	6	1	3	2	3	5	2																
4	8	6	8	7	7	5	6	8	5	8	6	8	5	5	8	8	7	7	8	7	7	8	8	5																
5	6	1	7	3	5	3	1	1	3	3	2	3	3	2	6	3	3	1	3	7	4	5	3	4																
6	7	9	4	8	6	9	9	7	7	8	9	9	9	8	9	8	9	9	7	8	6	8	6	6																
7	6	5	6	5	7	1	3	9	5	3	7	4	1	3	5	5	4	7	1	8	3	4	4	5																
8	6	1	3	4	4	2	1	1	1	2	3	2	2	2	1	2	1	2	2	3	5	5	3	3																
9	3	7	5	8	5	3	9	5	8	9	7	9	7	9	7	9	9	8	6	6	8	6	6	3																
10	5	7	7	7	7	7	5	9	9	8	7	9	9	6	9	9	9	2	9	6	8	8	8	7																
11	7	1	3	2	3	8	5	1	2	1	4	1	1	3	2	1	1	1	1	2	1	1	3	1																
12	6	1	7	1	5	3	1	2	2	3	3	2	5	4	2	2	1	5	3	3	3	8	3	1																
locus causality	17	21	14	23	18	19	25	17	20	25	23	27	23	21	24	26	22	24	20	19	22	21	21	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
external control	18	3	17	8	14	8	3	4	6	8	8	7	10	8	9	7	5	8	8	13	12	18	9	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
stability	18	8	12	10	13	10	16	13	8	6	15	6	5	11	9	7	10	14	3	13	6	8	12	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
personal control	21	21	22	21	19	20	15	26	22	25	22	26	23	17	26	26	22	17	25	20	20	23	24	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Individual averages	
Total responses:-->	24
locus of causality	20.92
external control	9.13
stability	10.04
personal control	21.75

Causal dimensions scale computations: — Female Winners (Outcome)

INDIVID	P1	p2	p3	p4	p5	p6	p7	p8	p9	p10	p11	p12	p13	p14	p15	p16	p17	p18	p19	p20	p21	p22	p23	p24	p25	p26	p27	p28	p29	p30	p31	p32	p33	p34	p35	p36	p37	p38	3p9	p40	p41	p42
Item #																																										
1	3	9	9	9	8	7	8	9	9	7	9	8	5	5	8	7	8	8	9	7	7	4	7	6	9	9	8	9	8	9	6	9	9	8	5	6	7	8	8	9	5	6
2	8	8	9	9	8	8	9	8	9	6	8	8	9	9	8	8	8	9	9	7	7	7	7	7	7	9	9	9	8	8	5	9	9	8	8	8	6	8	8	9	9	8
3	5	7	8	7	8	8	5	6	8	7	9	8	2	2	7	7	7	7	9	3	5	5	8	6	6	1	8	5	8	8	5	7	8	8	5	5	8	6	7	6	7	6
4	8	8	8	8	8	6	9	9	9	7	9	8	9	9	8	8	8	8	9	5	8	7	6	7	7	8	8	9	8	8	6	9	8	7	7	9	6	6	8	8	7	7
5	2	3	1	8	8	4	3	9	9	2	7	2	1	1	2	7	2	1	5	3	3	5	8	7	9	7	2	9	2	5	3	1	1	2	4	3	5	2	7	2	2	8
6	9	8	9	8	7	9	9	8	9	8	8	8	9	9	8	6	9	8	8	8	9	9	7	5	8	8	8	9	9	8	8	9	9	8	9	7	8	7	7	8	7	8
7	6	7	8	7	8	7	5	7	9	8	8	7	4	4	7	6	8	7	6	4	6	4	6	6	7	5	8	5	8	8	5	7	8	8	1	7	7	7	7	8	4	7
8	1	5	1	6	3	1	1	5	1	3	6	2	1	1	1	5	2	1	2	3	5	5	7	5	5	3	2	1	2	8	3	1	1	2	5	3	2	1	8	1	5	5
9	9	9	9	9	7	9	9	9	9	8	9	8	9	9	9	6	8	8	8	8	7	9	7	8	9	9	9	9	9	8	8	9	9	8	9	5	8	9	7	7	8	8
10	9	9	9	9	6	9	9	9	9	7	9	8	9	9	9	8	8	9	9	8	9	9	7	6	6	9	9	9	5	8	7	9	9	9	9	7	8	8	7	8	9	7
11	5	6	7	8	8	7	5	6	8	6	8	6	1	1	7	6	7	6	7	4	5	3	6	7	6	1	7	5	8	5	7	5	8	7	1	3	5	7	7	7	2	6
12	1	7	9	4	7	4	6	7	9	6	1	2	1	1	2	6	2	1	3	3	4	3	5	5	9	5	3	1	6	1	2	2	1	2	5	5	2	2	9	2	4	6
locus causality	21	26	27	26	22	25	26	26	27	23	26	24	23	23	25	19	25	24	25	23	23	22	21	19	26	26	25	27	26	25	22	27	27	24	23	18	23	24	22	24	20	22
external control	4	15	11	18	18	9	10	21	19	11	14	6	3	3	5	18	6	3	10	9	12	13	20	17	23	15	7	11	10	14	8	4	3	6	14	11	9	5	24	5	11	19
stability	16	20	23	22	24	22	15	19	25	21	25	21	7	7	21	19	22	20	22	11	16	12	20	19	19	7	23	15	24	21	17	19	24	23	7	15	20	20	21	21	13	19
personal control	25	25	26	26	22	23	27	26	27	20	26	24	27	27	25	24	24	26	27	20	24	23	20	20	20	26	26	27	21	24	18	27	26	24	24	24	20	22	23	25	25	22

Individual averages	
Total responses:-->	42
locus of causality	23.86
external control	11.19
stability	18.50
personal control	24.00

APPENDIX D RAW SCORES PROVINCIALS
Female Outcome

Causal dimensions scale computations — Male Team performance (Losers)

INDIVID Item #	P1	p2	p3	p4	p5	p6	p7	p8	p9	p10	p11	p12	p13	p14	p15	p16	p17	p18	p19	p20	p21	p22	p23	p24	p25	p26	p27	p28	p29	p30	p31	p32	p33	p34	p35	p36	p37	p38	p39	p40	p41	p42	p43
1	7	5	1	7	5	8	7	3	6	2	3	7	9	5	6	9	4	8	3	5	8	1	1	9	9	9	7	3	8	6	7	7	6	1	6	3	8	5	7	5	8	4	5
2	6	8	2	6	4	7	5	7	6	9	7	8	9	7	9	9	7	9	9	8	8	9	9	7	9	9	9	5	8	6	7	7	7	9	9	3	6	7	6	6	7	6	9
3	1	3	5	6	6	5	6	2	1	1	1	1	1	4	6	5	5	2	1	2	2	1	1	4	5	7	1	4	5	3	5	2	3	1	2	3	2	2	1	3	1	1	1
4	5	5	6	8	7	5	5	3	9	9	9	8	7	7	6	9	7	9	9	8	8	9	9	7	6	9	7	8	3	6	8	8	7	9	4	2	8	5	8	5	5	9	9
5	5	5	5	6	4	2	1	2	5	1	6	2	1	5	1	3	2	2	1	9	1	1	1	3	8	3	1	8	6	4	3	3	7	1	5	8	2	1	4	2	6	4	9
6	6	5	6	8	7	8	5	8	9	9	8	8	9	7	8	9	8	9	9	8	9	9	9	7	8	8	9	8	8	7	7	7	7	9	8	8	5	9	7	9	8	9	6
7	3	3	7	3	5	4	5	8	1	2	2	7	5	5	4	9	3	2	4	7	5	9	5	1	7	8	6	8	2	6	5	8	3	1	5	2	2	5	5	3	1	3	2
8	3	3	5	7	3	3	2	2	5	1	4	2	1	5	6	3	2	1	4	2	1	1	1	1	1	3	1	6	6	3	4	6	6	1	7	1	2	4	3	1	1	3	1
9	7	6	7	4	6	8	7	7	5	9	8	7	8	6	8	9	9	9	9	9	9	9	9	9	6	9	8	6	6	7	7	7	7	9	9	8	6	7	7	8	7	5	5
10	6	6	6	8	5	3	7	8	9	9	7	8	8	5	6	9	7	9	9	8	9	9	9	9	7	9	6	8	6	8	8	8	7	9	7	2	6	6	6	8	8	9	9
11	2	4	4	8	6	4	4	4	5	1	1	1	1	3	4	5	3	1	1	1	1	1	1	1	1	5	2	3	2	3	5	5	3	1	1	5	2	2	1	5	2	1	1
12	5	3	5	6	4	2	2	2	1	1	5	2	7	5	6	3	4	1	1	2	1	1	1	1	7	2	1	5	6	7	4	6	7	1	1	2	3	5	3	5	2	4	5
locus causality	20	16	14	19	18	24	19	18	20	20	20	22	26	18	22	27	21	26	21	22	26	19	19	22	21	26	24	17	24	20	21	21	20	19	23	20	16	21	21	22	23	16	16
external control	13	11	15	19	11	7	5	6	11	3	15	6	[illegible]	15	13	9	8	4	6	13	3	3	3	5	16	8	3	19	18	14	11	17	20	3	13	5	7	10	10	6	12	11	19
stability	6	10	16	17	17	13	15	14	7	4	4	9	7	12	14	19	11	5	6	10	8	11	7	6	13	20	9	13	9	12	15	15	6	3	8	10	6	9	7	11	4	5	4
personal control	17	17	14	24	16	15	17	18	24	27	23	24	24	19	21	27	21	27	27	24	25	27	27	23	22	27	22	21	17	18	21	23	21	27	20	7	24	20	24	15	20	26	27

Individual averages	
Total responses -->	43
locus of causality	20.81
external control	10.16
stability	10.00
personal control	21.72

Causal dimensions scale computations — Male Team performance (Winners)

INDIVID Item #	P1	p2	p3	p4	p5	p6	p7	p8	p9	p10	p11	p12	p13	p14	p15	p16	p17	p18	p19	p20	p21	p22	p23	p24	p25	p26	p27	p28	p29	p30	p31	p32	p33	p34	p35	p36	p37	p38	p39	p40
1	6	8	7	7	8	8	7	8	8	9	7	7	8	9	8	9	8	7	8	5	5	8	9	9	8	8	8	7	5	9	9	8		8	7	9				
2	7	8	8	7	8	7	8	8	7	8	8	6	9	9	8	7	8	9	8	5	7	8	7	8	7	7	7	8	6	9	8	8		8	9	7				
3	4	7	7	7	7	4	6	7	8	5	6	8	7	7	5	7	8	5	7	4	4	5	8	8	8	7	5	6	3	9	7	5		7	7	8				
4	7	7	9	7	8	7	6	9	6	7	7	8	7	8	7	9	8	8	6	5	7	8	7	8	8	8	8	7	6	9	8	6		8	9	6				
5	2	7	8	5	5	5	5	2	8	8	2	6	1	2	2	1	7	8	8	5	7	2	1	3	8	4	4	3	3	1	8	2		8	7	9				
6	7	8	8	8	8	8	7	8	7	9	7	7	8	9	8	9	8	5	8	6	6	9	9	8	8	8	8	8	7	9	9	8		8	9	8				
7	3	8	8	8	5	5	6	8	8	9	7	7	9	5	7	1	8	7	9	6	8	5	5	8	7	5	7	6	4	9	8	6		8	9	7				
8	5	3	5	8	5	7	5	1	9	5	2	6	3	2	2	1	2	5	9	5	6	2	1	3	8	4	3	3	3	1	1	2		3	1	8				
9	7	8	6	8	8	7	7	8	7	8	7	7	8	9	8	9	7	6	9	5	9	8	9	6	7	6	7	8	8	8	5	8		8	9	5				
10	1	8	8	8	8	6	6	9	6	9	7	7	9	9	7	9	9	8	6	5	8	8	3	6	8	7	8	9	6	8	9	6		8	9	7				
11	5	9	5	6	5	3	7	6	7	5	6	7	7	6	2	1	5	1	6	6	4	2	3	8	8	3	3	5	3	1	7	5		7	1	3				
12	2	3	5	6	5	4	7	8	8	2	2	6	1	2	2	7	5	3	7	4	5	2	1	3	6	5	4	2	2	1	1	3		3	1	6				
locus causality	20	24	24	23	24	23	21	24	22	26	21	21	25	27	24	27	23	18	25	16	20	25	27	25	23	18	21	23	20	27	23	24	C	24	25	22	C	C	C	C
external control	9	13	18	19	15	16	17	11	25	15	6	18	5	6	6	9	14	16	24	14	18	6	3	9	25	13	11	8	8	3	8	7	C	14	9	23	C	C	C	C
stability	12	24	20	21	17	12	19	21	23	19	19	22	23	18	14	9	21	13	22	16	16	12	18	24	23	15	15	17	10	19	20	18	C	22	17	18	C	C	C	C
personal control	15	21	25	22	24	20	20	26	19	24	22	21	25	27	22	25	25	25	18	15	22	25	17	24	23	22	23	24	18	27	25	22	C	24	27	20	C	C	C	C

Individual averages	
Total responses -->	35
locus of causality	23.00
external control	12.60
stability	17.86
personal control	22.40

APPENDIX D RAW SCORES PROVINCIALS
Male Team Performance

Causal dimensions scale computations

Female (Team performance) Losers

INDIVID	P1	p2	p3	p4	p5	p6	p7	p8	p9	p10	p11	p12	p13	p14	p15	p16	p17	p18	p19	p20	p21	p22	p23	p24	p25	p26	p27	p28	p29	p30	p31	p32	p33	p34	p35	p36	p37	p38	3p9	p40
Item #																																								
1	7	6	5	8	6	9	9	2	5	8	8	9	7	1	9	9	9	9	7	5	3	8	8	5																
2	6	6	6	8	8	8	2	8	6	8	8	8	8	3	9	9	1	9	8	6	8	8	4	7																
3	8	1	5	3	3	7	3	1	3	1	7	1	1	1	3	1	5	7	1	4	5	2	3	3																
4	6	8	7	7	8	6	5	7	6	8	9	9	5	5	9	9	8	7	8	7	8	8	4	7																
5	7	1	6	2	7	1	1	2	5	2	2	1	2	3	8	2	1	5	3	3	3	2	2	3																
6	6	8	8	9	7	9	9	7	8	8	8	9	6	7	9	9	9	8	7	5	6	7	8	9																
7	4	6	7	7	8	5	5	8	3	1	6	2	6	2	1	4	5	6	1	7	7	7	3	6																
8	7	1	3	2	5	2	1	2	3	2	3	2	4	1	2	1	1	4	2	3	2	5	2	1																
9	8	9	6	8	7	9	7	6	8	8	8	9	7	5	9	9	9	7	6	6	9	8	7	7																
10	8	9	8	9	7	8	5	9	8	8	8	9	8	7	9	9	9	5	9	6	9	8	8	9																
11	7	1	4	2	2	5	5	1	3	2	6	1	1	3	2	1	1	1	1	3	1	1	2	1																
12	5	1	5	1	6	3	1	1	2	2	3	2	3	8	7	1	1	6	3	3	2	6	2	1																
locus causality	21	26	19	25	20	27	25	15	21	24	26	27	23	13	27	27	27	22	20	16	20	23	23	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
external control	19	3	14	5	16	8	3	5	10	6	8	5	9	12	17	4	3	15	8	9	7	13	6	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
stability	16	8	16	12	13	17	13	10	9	4	19	4	8	6	6	6	11	14	3	14	13	10	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
personal control	18	26	21	24	23	20	12	24	20	24	26	27	21	15	27	27	19	21	25	19	25	24	16	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Individual averages

Total responses:--> 24

locus of causality 22.42

external control 8.75

stability 10.46

personal control 21.96

Causal dimensions scale computations

Female (Team performance) Winners

INDIVID	P1	p2	p3	p4	p5	p6	p7	p8	p9	p10	p11	p12	p13	p14	p15	p16	p17	p18	p19	p20	p21	p22	p23	p24	p25	p26	p27	p28	p29	p30	p31	p32	p33	p34	p35	p36	p37	p38	3p9	p40	p41	p42
Item #																																										
1	8	9	9	9	9	9	9	9	9	7	9	8	5	5	6	6	5	8	9	9	6	7	7	8	7	8	8	7	8	8	6	9	9	8	5	7	6	8	8	8	8	
2	8	9	9	9	8	9	9	8	9	8	8	8	9	9	8	5	7	9	9	9	8	8	7	8	8	9	9	9	7	8	5	9	9	8	8	8	8	8	8	8	8	
3	8	7	8	7	9	8	5	5	9	7	9	8	1	1	6	5	2	7	8	5	5	4	6	6	6	1	7	1	7	7	5	3	8	8	5	3	7	7	7	7	7	
4	7	8	9	8	7	9	9	7	9	8	8	8	9	9	8	8	8	8	8	7	8	9	6	7	7	8	7	5	8	7	6	5	8	8	6	8	6	7	8	6	7	
5	1	5	1	6	5	7	6	6	1	7	7	2	1	1	1	5	2	1	5	8	3	4	7	6	3	7	3	1	4	2	3	3	1	2	1	2	8	2	6	2	3	
6	8	5	9	8	8	9	7	9	9	8	8	8	9	9	7	5	8	8	8	7	8	9	6	6	6	9	8	5	8	8	8	9	9	8	9	5	6	6	7	8	7	
7	7	7	8	7	8	9	6	9	9	8	8	7	3	3	6	5	7	7	6	4	6	3	6	5	5	5	8	1	8	7	5	2	8	8	8	3	7	7	7	6	6	
8	2	4	1	6	3	1	5	6	1	7	6	2	1	1	1	5	2	1	2	7	2	3	6	6	3	3	2	1	2	2	3	1	1	2	1	3	3	1	6	1	4	
9	8	9	9	9	7	5	8	8	9	8	9	8	9	9	5	6	7	8	8	7	9	9	8	6	8	8	9	5	8	9	8	9	9	8	8	6	7	8	8	8	8	
10	9	9	9	9	8	9	9	9	9	8	9	8	9	9	9	7	7	9	9	7	9	8	7	6	8	8	8	7	5	8	7	9	9	8	8	6	6	6	8	8	8	
11	7	2	1	8	8	5	7	7	9	7	1	2	1	1	6	3	3	1	7	4	5	3	8	6	6	1	7	1	4	5	7	2	8	7	5	3	2	7	8	6	4	
12	1	4	1	4	2	1	6	9	9	4	1	2	1	1	1	5	2	1	3	9	3	4	7	7	6	5	2	1	6	2	7	1	1	2	5	3	8	1	8	1	3	
locus causality	25	23	27	26	23	23	24	26	27	23	26	24	23	23	18	17	20	24	25	23	25	25	21	20	23	26	25	17	25	25	22	27	27	24	23	16	21	25	23	26	23	0
external control	4	13	3	16	10	9	17	21	11	18	14	8	3	3	3	15	6	3	10	24	8	11	20	19	12	15	7	3	12	8	13	5	3	6	7	8	19	4	24	4	10	0
stability	20	16	17	22	25	20	18	21	27	22	18	17	5	5	18	13	12	15	22	13	16	10	20	17	17	7	22	3	19	19	17	7	27	23	19	6	16	21	22	25	17	0
personal control	24	26	27	26	23	27	27	24	27	24	26	24	27	27	25	18	22	26	27	23	25	26	20	21	24	26	23	21	20	23	18	23	27	24	23	22	20	23	24	26	23	0

Individual averages

Total responses:--> 41

locus of causality 23.44

external control 10.37

stability 17.05

personal control 23.96

APPENDIX D RAW SCORES PROVINCIALS
Female Team Performance

Causal dimensions scale computations

Male Individual PerformanceLosers

Individual averages

INDIVID	P1	p2	p3	p4	p5	p6	p7	p8	p9	p10	p11	p12	p13	p14	p15	p16	p17	p18	p19	p20	p21	p22	p23	p24	p25	p26	p27	p28	p29	p30	p31	p32	p33	p34	p35	p36	p37	p38	3p9	p40	p41	p42	p43	Total responses --->	29
Item #																																												locus of causality	
1	8	6	7	9		4		8	6		9	7		5	9	9			9	7	2		1	3	9	7	8	9		9	7		8	1	3						8	9	6	21.93	
2	7	6	7	9		6		7	6		9	6		6	9	9			9	8	9		9	3	9	8	9	9		8	4		8	7	4						7	9	8		
3	3	3	6	9		2		8	1		5	1		6	9	9			1	2	1		1	3	3	6	7	9		3	3		8	1	4						1	1	1	external control	
4	6	5	7	9		4		6	9		9	8		5	7	9			9	7	9		9	3	7	8	8	9		7	3		8	9	8						5	5	8	10.90	
5	6	5	6	9		8		7	5		2	7		5	2	7			1	2	1		1	7	1	3	2	7		6	3		6	1	2						9	3	1	stability	
6	8	5	5	8		5		8	9		9	8		5	8	9			9	8	9		9	3	9	8	9	9		8	8		7	9	4						8	9	9	12.97	
7	6	3	7	8		3		6	1		5	8		4	8	9			1	8	5		5	1	3	6	7	8		4	2		7	9	3						1	9	1		
8	5	5	2	1		6		1	6		2	2		5	2	5			1	2	1		1	7	1	2	1	7		4	6		6	1	2						1	1	1	personal control	
9	9	5	4	9		4		9	9		9	7		6	8	9			5	8	9		9	3	9	8	8	9		8	7		8	9	8						7	9	9	21.86	
10	7	6	5	9		5		7	5		9	8		7	9	9			9	8	9		9	3	9	8	9	9		3	5		8	9	6						8	6	9		
11	2	3	6	9		3		5	1		5	1		3	7	9			1	1	1		1	1	1	6	7	6		8	3		8	1	4						2	5	1		
12	8	3	4	1		7		1	5		1	2		5	8	5			5	2	1		1	7	3	3	1	7		5	4		8	1	2						2	1	1		
locus	25	16	16	26	0	13	0	25	24	0	27	22	0	16	25	27	0	0	23	23	20	0	19	9	27	23	25	27	0	25	22	0	23	19	15	0	0	0	0	0	23	27	24		
causality																																													
external																																													
control	19	13	12	11	0	21	0	9	16	0	5	11	0	15	12	17	0	0	7	6	3	0	3	21	5	8	4	21	0	15	13	0	20	3	6	0	0	0	0	0	12	5	3		
stability	11	9	19	26	0	8	0	19	3	0	15	10	0	13	24	27	0	0	3	11	7	0	7	5	7	18	21	23	0	15	8	0	23	11	11	0	0	0	0	0	4	15	3		
personal																																													
control	20	17	19	27	0	15	0	20	20	0	27	22	0	18	25	27	0	0	27	23	27	0	27	9	25	24	26	27	0	18	12	0	24	25	18	0	0	0	0	0	20	20	25		

Causal dimensions scale computations

Male Individual Performance Winners

Individual averages

INDIVID	P1	p2	p3	p4	p5	p6	p7	p8	p9	p10	p11	p12	p13	p14	p15	p16	p17	p18	p19	p20	p21	p22	p23	p24	p25	p26	p27	p28	p29	p30	p31	p32	p33	p34	p35	p36	p37	p38	3p9	p40				Total responses --->	20
Item #																																												locus of causality	
1	7	8		7		9	7	8			8			9	8	9		7		8	8			8		6		8	7	9	9	8												24.10	
2	9	8		7		8	7	9			8			9	9	9		9		9	8			9		8		8	8	9	9	8													
3	7	9		8		5	5	7			8			6	7	9		4		9	8			9		4		5	7	9	8	6												external control	
4	7	9		8		8	6	9			8			9	9	9		9		8	6			8		8		7	7	9	9	8												11.65	
5	6	4		6		6	7	1			2			5	5	1		6		2	7			4		3		4	2	1	6	3												stability	
6	7	9		9		8	6	9			8			9	8	9		8		8	9			8		8		6	8	9	9	8												18.60	
7	3	9		6		5	6	8			6			6	7	5		6		8	5			8		2		8	7	9	6	6													
8	6	2		6		7	7	1			2			3	3	6		2		2	6			4		2		2	2	1	6	3												personal control	
9	7	9		9		8	7	8			7			9	7	9		8		8	8			8		8		7	8	9	8	9												24.70	
10	8	9		9		7	7	9			8			9	9	9		7		9	7			8		8		9	9	9	6	9													
11	6	9		6		4	6	6			7			4	5	5		6		7	6			4		2		7	4	1	5	6													
12	7	1		6		5	7	1			5			4	3	6		4		2	6			4		3		4	2	1	6	2													
locus	21	26	0	25	0	25	20	25	0	0	23	0	0	27	23	27	0	23	0	24	25	0	0	24	0	22	0	21	23	27	26	25	0	0	0	0	0	0	0	0					
causality																																													
external																																													
control	19	7	0	18	0	18	21	3	0	0	9	0	0	12	11	13	0	12	0	6	19	0	0	12	0	8	0	10	6	3	18	8	0	0	0	0	0	0	0	0					
stability	16	27	0	20	0	14	17	21	0	0	21	0	0	16	19	19	0	16	0	24	19	0	0	21	0	8	0	20	18	19	19	18	0	0	0	0	0	0	0	0					
personal																																													
control	24	26	0	24	0	23	20	27	0	0	24	0	0	27	27	27	0	25	0	26	21	0	0	25	0	24	0	24	24	27	24	25	0	0	0	0	0	0	0	0					

APPENDIX D RAW SCORES PROVINCIALS
Male Individual Performance

Causal dimensions scale computations

Female Individual Performance (Losers)

INDIVID	P1	p2	p3	p4	p5	p6	p7	p8	p9	p10	p11	p12	p13	p14	p15	p16	p17	p18	p19	p20	p21	p22	p23	p24	p25	p26	p27	p28	p29	p30	p31	p32	p33	p34	p35	p36	p37	p38	p39	p40	
Item #																																									
1	6	6		8	8	3	7	8	8	8	8				8	9	9	7	8	6			9																		
2	1	9		8	8	7	9	8	8	9	9				8	9	9	9	8	7			8																		
3	5	7		3	8	5	9	5	7	1	7				3	7	5	7	1	7			6																		
4	4	7		8	8	8	9	6	5	8	8				7	9	9	7	8	7			8																		
5	9	6		3	3	7	1	6	6	2	4				2	2	1	1	5	6			2																		
6	9	9		9	8	8	9	9	9	8	8				8	9	9	8	7	6			8																		
7	5	7		6	8	5	9	8	4	1	6				5	5	6	5	1	7			3																		
8	9	6		2	3	7	1	4	2	7	4				4	3	1	1	5	6			3																		
9	5	8		9	8	5	5	6	7	9	8				7	9	9	7	7	6			9																		
10	1	9		9	8	6	9	8	9	9	9				7	9	9	7	7	8			9																		
11	5	1		2	8	3	9	3	4	1	6				1	2	1	7	1	7			3																		
12	9	5		1	3	5	1	6	2	8	4				5	3	1	1	5	4			2																		
locus	20	23	0	26	24	16	21	23	24	25	24	0	0	0	23	27	27	22	22	18	0	0	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
causality																																									
external																																									
control	27	17	0	6	9	19	3	16	10	17	12	0	0	0	11	8	3	3	15	16	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
stability	15	15	0	11	24	13	27	16	15	3	19	0	0	0	9	14	12	19	3	21	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
personal																																									
control	6	25	0	25	24	21	27	22	22	26	26	0	0	0	22	27	27	23	23	22	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Individual averages

Total responses --> 17

locus of causality 23.00

external control 11.71

stability 14.59

personal control 23.12

Causal dimensions scale computations

Female Individual Performance (Winners)

INDIVID	P1	p2	p3	p4	p5	p6	p7	p8	p9	p10	p11	p12	p13	p14	p15	p16	p17	p18	p19	p20	p21	p22	p23	p24	p25	p26	p27	p28	p29	p30	p31	p32	p33	p34	p35	p36	p37	p38	3p9	p40	p41
Item #																																									
1	7	8	9	9		9		9	9		8	9							9	9	7	8	6	7		9	9	9	8			5		8			7	9	7		5
2	8	8	9	7		9		9	9		8	9							9	9	7	9	5	8		9	9	9	8			3		8			8	9	8		7
3	6	6	8	7		8		7	9		8	5							9	8	5	5	6	8		7	8	5	5			2		8			6	7	8		8
4	8	7	9	8		9		8	9		8	7							9	9	8	9	6	7		9	8	5	6			2		7			8	8	8		8
5	2	4	1	1		1		5	1		1	1							3	1	3	7	5	5		1	1	1	5			3		2			8	1	7		5
6	9	7	9	9		9		5	9		9	9							9	9	9	9	7	9		9	9	9	8			8		8			8	9	8		8
7	7	6	8	6		8		7	9		9	6							8	9	6	5	8	7		7	8	5	5			2		8			5	9	7		6
8	1	5	1	3		1		9	1		5	1							3	1	5	7	6	3		1	2	1	3			3		2			5	2	7		5
9	9	8	9	9		5		9	9		5	9							9	9	7	9	7	7		9	9	9	8			8		9			8	8	7		8
10	9	8	9	9		9		8	9		7	9							9	9	9	9	6	9		9	8	7	9			3		8			9	8	7		7
11	7	3	7	7		7		7	9		7	5							8	7	5	5	6	8		7	7	1	1			2		7			1	8	6		6
12	1	3	1	3		1		3	1		1	1							3	1	4	6	6	5		1	2	1	7			4		2			8	3	7		5
locus	25	23	27	27	0	23	0	23	27	0	22	27	0	0	0	0	0	0	27	27	23	26	20	23	0	27	27	27	24	0	0	21	0	25	0	0	23	26	22	0	21
causality																																									
external																																									
control	4	12	3	7	0	3	0	17	3	0	7	3	0	0	0	0	0	0	9	3	12	20	17	13	0	3	5	3	15	0	0	10	0	6	0	0	21	6	21	0	15
stability	20	15	23	20	0	23	0	21	27	0	24	16	0	0	0	0	0	0	25	24	16	15	20	23	0	21	23	11	11	0	0	6	0	23	0	0	12	24	21	0	20
personal																																									
control	25	23	27	24	0	27	0	25	27	0	23	25	0	0	0	0	0	0	27	27	24	27	17	24	0	27	25	21	23	0	0	8	0	23	0	0	25	25	23	0	22

Individual averages

Total responses --> 25

locus of causality 24.52

external control 9.52

stability 19.36

personal control 23.76

APPENDIX D RAW SCORES PROVINCIALS
Female Individual Performance